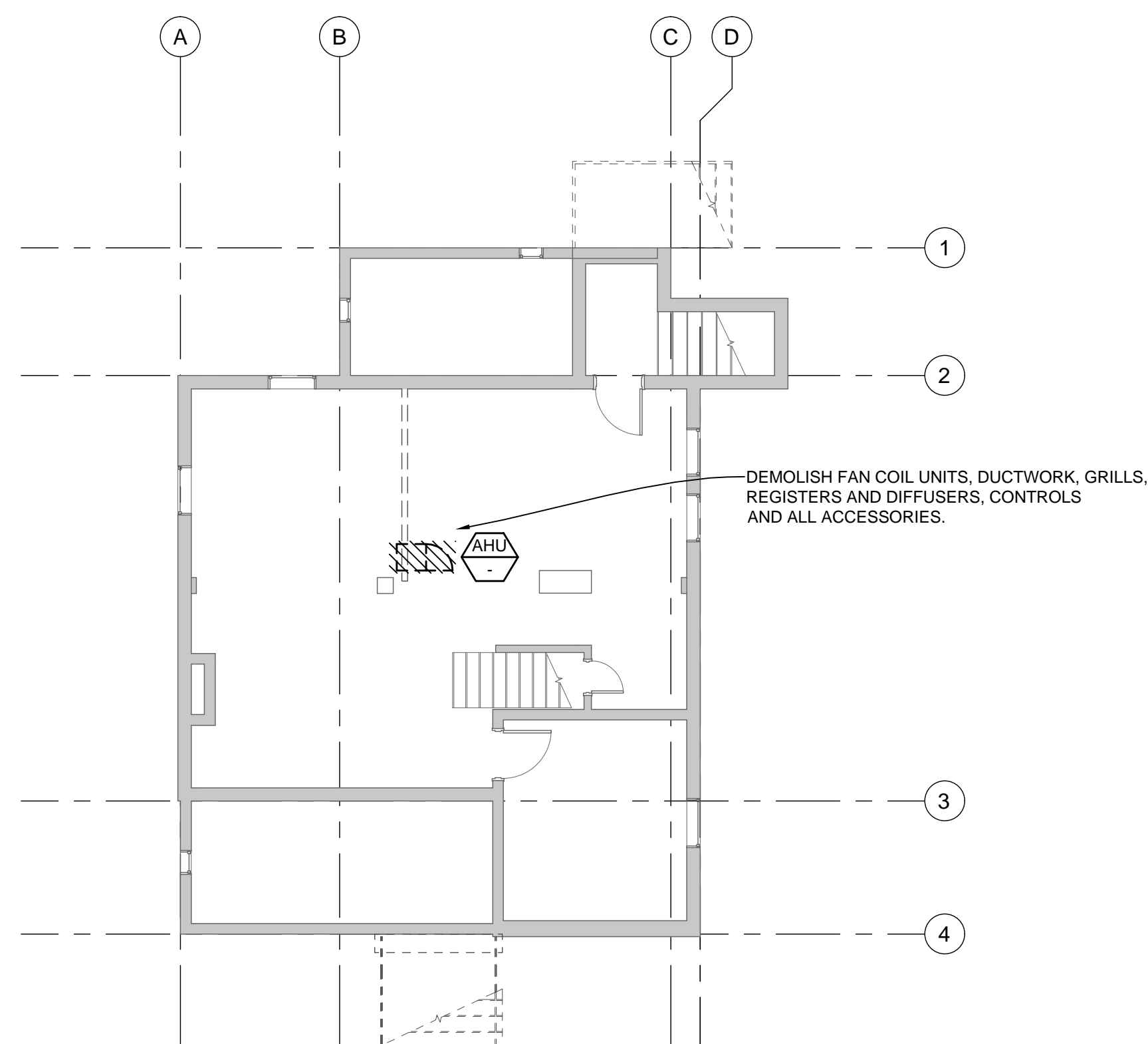


2 FIRST FLOOR MECHANICAL DEMOLITION PLAN  
M-100L SCALE: 1/8" = 1'-0" LODGE BUILDING

**3 SECOND FLOOR MECHANICAL DEMOLITION PLAN**  
M-100L SCALE: 1/8" = 1'-0" LODGE BUILDING



**1 BASEMENT FLOOR MECHANICAL DEMOLITION PLAN**  
M-100L SCALE: 1/8" = 1'-0" LODGE BUILDING

DRAWINGS ABBREVIATIONS:			
Ø	DIAMETER	HP	HORSEPOWER
AE	ARCHITECT/ENGINEER	HVAC	HEATING, VENTILATING, AIR CONDITIONING
AFB	AIR CONDITION (ING. -ED)	HW	HOT WATER
AFF	ABOVE FINISHED FLOOR	HZ	HERTZ
AHU	AIR-HANDLING UNIT		
AMP	AMPERE (AMP, AMPS, AMPERAGE)	IN	INCHES
APD	AIR PRESSURE DROP	IN WC	INCH WATER COLUMN
APPROX	APPROXIMATE	KV	KILOVOLT
ARCH	ARCHITECT/ARCHITECTURAL	KWH	KILOWATT HOUR
B	BOILER	LAT	LEAVING AIR TEMPERATURE
BHP	BRAKE HORSEPOWER	LBS	POUNDS
BTU	BRITISH THERMAL UNIT	LWB	LEAVING WET BULB
BTUH	BRITISH THERMAL UNIT PER HOUR	LWT	LEAVING WATER TEMPERATURE
CB	CUBIC FEET PER MINUTE	MAT	MIXED AIR TEMPERATURE
CE	CLEANOUT	MBT	THOUSAND BTU/SHR
CO2	CARBON DIOXIDE	MCA	MINIMUM BRANCH CIRCUIT AMPACITY
COP	COEFFICIENT OF PERFORMANCE	MECH	MECHANICAL
CWCC	CHILLED WATER COOLING COIL	MERV	MINIMUM EFFICIENCY REPORTING VALUE
CWP	CONDENSER WATER PUMP	MFR	MANUFACTURER
CWR	CONDENSER WATER RETURN (TO COOLING TOWER)	MIN	MINIMUM
DEG	DEGREE	MISC	MISCELLANEOUS
DEMO	DEMOLITION	MM	MILLIMETER
DX	DIRECT EXPANSION	NC	NOISE CRITERIA
EA	EXHAUST AIR	NG	NATURAL GAS
EAT	ENTERING AIR TEMPERATURE		
EER	ENERGY EFFICIENCY RATIO	NTS	NOT TO SCALE
EF	EXHAUST FAN	OA	OUTSIDE AIR
ELEC	ELECTRICAL	P	PUMP
ENT	ENTERING	PD	PRESSURE DROP OR DIFFERENCE
ERV	ENERGY RECOVERY VENTILATOR	PH	PHASE (ELECTRICAL)
ET	EXPANSION TANK	PPM	PARTS PER MILLION
EWB	ENTERING WET BULB	PRESS	PRESSURE
EWT	ENTERING WATER TEMPERATURE	PRV	POWER ROOF VENTILATOR
F	FAHRENHEIT	PSI	POUNDS PER SQUARE INCH
FBM	FEET PER MINUTE	PSIG	POUNDS PER SQUARE INCH-GAGE
FT	FOOT OR FEET	PVC	POLYVINYL CHLORIDE
GAL	GALLONS	R/E	RETURN OR EXHAUST
GPM	GALLONS PER MINUTE	RA	RETURN AIR
HD	HEAD	RAT	RETURN AIR TEMPERATURE
HP	HEAT PUMP	REG	REGISTER, GRILLE, OR DIFFUSER
		RL	REFRIGERANT LIQUID LINE
		RH	RELATIVE HUMIDITY
		RPM	REVOLUTIONS PER MINUTE
		RS	REFRIGERANT SUCTION LINE
		RTU	ROOF TOP UNIT
		SA	SUPPLY AIR
		SAT	SUPPLY AIR TEMPERATURE
		SEN	SENSIBLE HEAT
		SF	SUPPLY FAN
		SP	STATIC PRESSURE
		SPEC	SPECIFICATION
		STB	TESTING, ADJUSTING, BALANCE
		TDH	TOTAL DYNAMIC HEAD
		TSP	TOTAL STATIC PRESSURE
		TSAT	THERMOSTAT
		V	VOLTS
		SQ FT	SQUARE FEET
		W	WATTS
		WB	WET-BULB (TEMPERATURE)
		WT	WEIGHT

**GENERAL MECHANICAL NOTES:** (APPLIES TO ALL SHEETS)

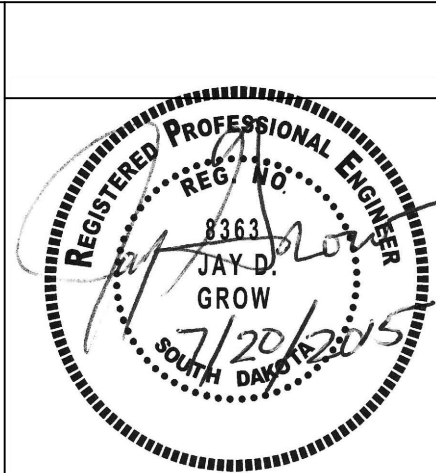
- A. ALL EQUIPMENT, MATERIALS, AND ARTICLES INCORPORATED IN THE WORK SHALL BE NEW AND OF COMPARABLE QUALITY AS SPECIFIED. ALL WORKSMANSHIP SHALL BE FIRST-CLASS AND SHALL BE PERFORMED BY MECHANICS SKILLED AND REGULARLY EMPLOYED IN THEIR RESPECTIVE TRADES.
- B. THESE DRAWINGS ARE GENERAL IN NATURE. ALTHOUGH EVERY ATTEMPT HAS BEEN MADE TO INDICATE THE EXACT ROUTING AND LOCATION OF PROPOSED SYSTEMS, NOT ALL OFFSETS, REQUIRED FITTINGS AND/OR CONDITIONS CAN BE SHOWN. THE CONTRACTOR SHALL COORDINATE WORK AND MAKE REQUIRED CHANGES TO THE ROUTING IN ORDER TO AVOID CONFLICTS WITHOUT ANY INCREASED COST TO THE OWNER.
- C. SYSTEMS DESIGNATED TO BE PROVIDED AND INSTALLED WITHIN THESE CONTRACT DOCUMENTS ARE INTENDED TO BE COMPLETE AND OPERATIONAL. PROVIDE EVERYTHING ESSENTIAL FOR THE COMPLETION OF THE WORK TO MAKE THE SYSTEM READY FOR NORMAL AND PROPER OPERATION, INCLUDING ALL WORK OR MATERIALS NOT DIRECTLY SHOWN ON THE DRAWINGS OR IN THE SPECIFICATIONS, BUT NECESSARY FOR THE PROPER OPERATION OF THE SYSTEM.
- D. HVAC CONTRACTOR IS RESPONSIBLE FOR ENSURING PROPER MAINTENANCE CLEARANCES ARE MAINTAINED. CLOSE COORDINATION WILL BE REQUIRED WITH THE FIRE PROTECTION, PLUMBING, AND ELECTRICAL CONTRACTOR.
- E. CONTRACTOR TO CONFIRM LOCATIONS OF EXISTING DUCTWORK.
- F. COORDINATE LOCATION OF DUCTWORK WITH STRUCTURE AND OTHER TRADES. INSTALL DUCTWORK AS HIGH AS POSSIBLE.
- G. COORDINATE FINAL CONTROL SETPOINTS AND OCCUPANCY SCHEDULE WITH COR.

GENERAL NOTES:

- A. DEMOLISH ALL EXISTING HVAC EQUIPMENT, DUCT, PIPING, AND ACCESSORIES. DUCT, PIPING, AND ACCESSORIES NOT SHOWN. NOT ALL ITEMS TO ME DEMOLISHED ARE SHOWN. FIELD VERIFY DEMOLITION WORK REQUIRED.

[illegible]

CONSULTANTS:



ARCHITECT/ENGINEERS:



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10.1696.013

Drawing Title	Lodge Building Mechanical Demolition Plans
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Approved: Project Director

Project Title	NASHVILLE NATIONAL CEMETERY ADMIN DEMOLITION AND FACILITY UPGRADES
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Location  
MADISON, TENNESSEE

Date  
7/20/2015

Checked
.JG

	Drawing Number

**M-100L**

Dwg 64 of 90

NCA DESIGN  
AND CONSTRUCTION  
SERVICE



three inches = one foot  
one and one half inches = one foot  
one inch = one foot  
three quarters inch = one foot  
one half inch = one foot  
three eighths inch = one foot  
one quarter inch = one foot  
one eighth inch = one foot

A

BD

C

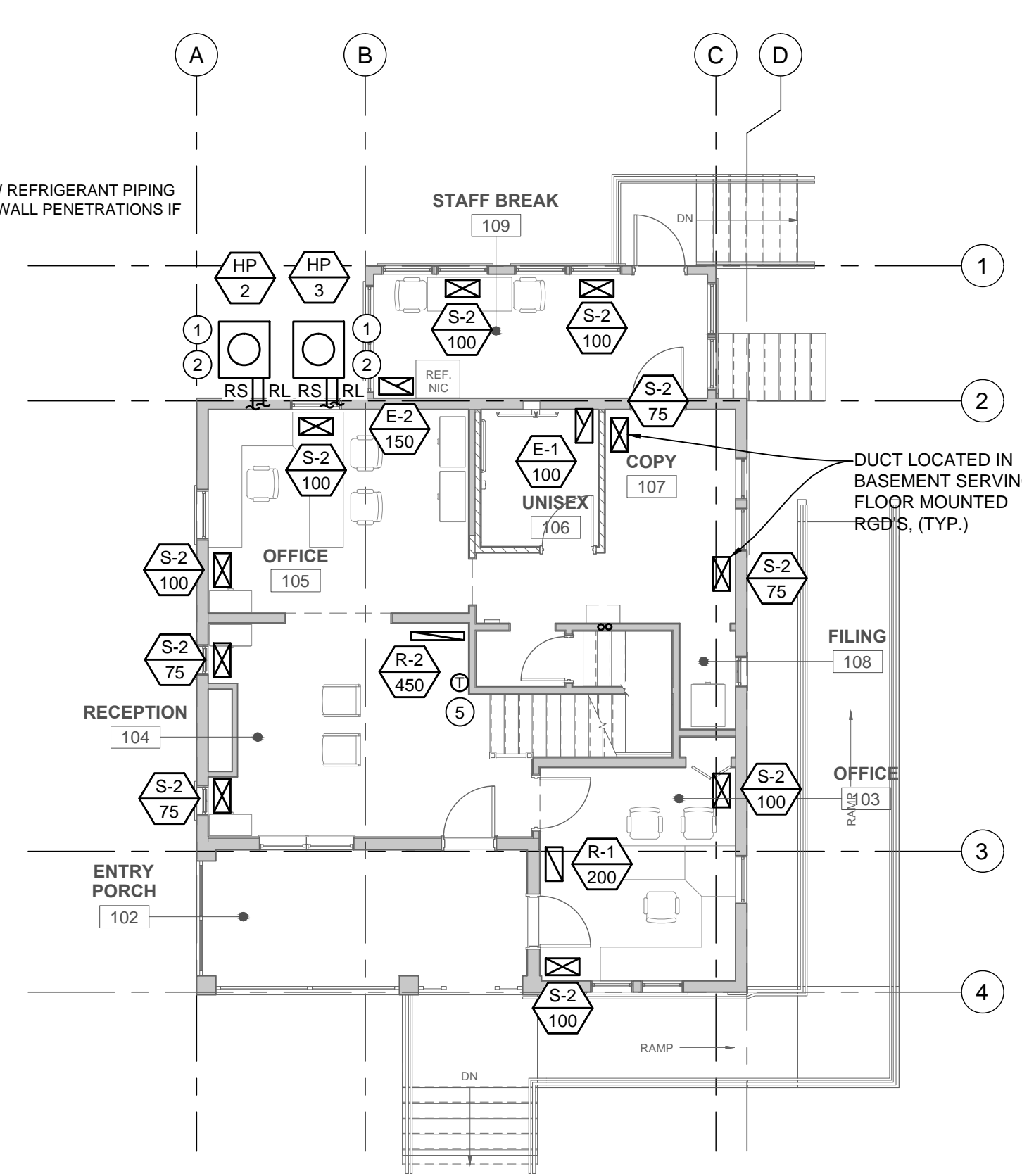
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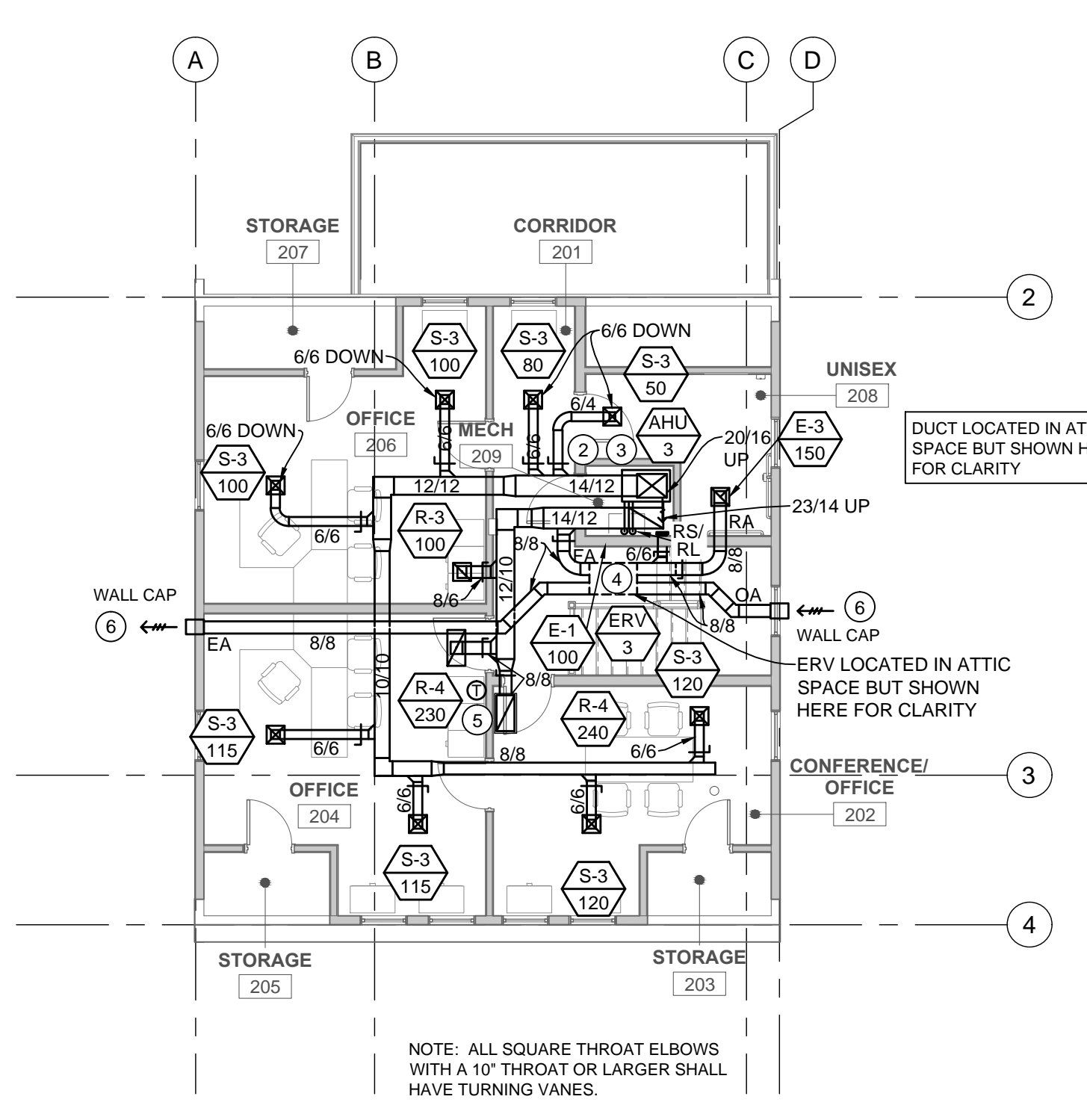
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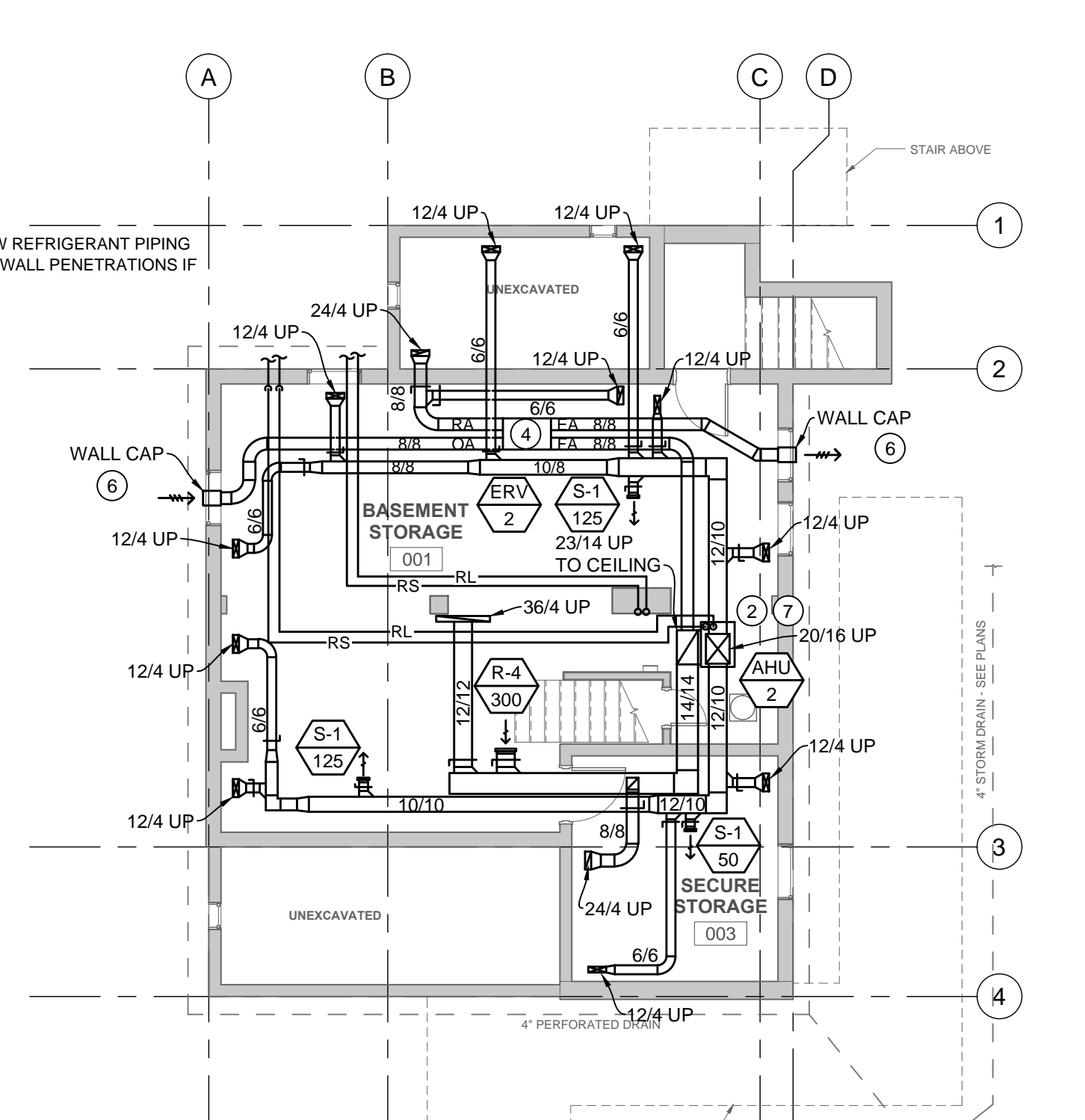
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**2 FIRST FLOOR HVAC PLAN**  
SCALE: 1/8" = 1'-0"  
LODGE BUILDING



**3 SECOND FLOOR HVAC PLAN**  
SCALE: 1/8" = 1'-0"  
LODGE BUILDING



**1 BASEMENT FLOOR HVAC PLAN**  
SCALE: 1/8" = 1'-0"  
LODGE BUILDING

ENERGY RECOVERY VENTILATOR SCHEDULE																		
EQUIP TAG	MFR	MODEL NUMBER	SUPPLY FAN			EXHAUST FAN			ENERGY RECOVERY PERFORMANCE				EXHAUST FILTERS	SUPPLY FILTERS	VOLTAGE V/PH/Hz	L/W/H (INCHES)	WEIGHT (LBS)	NOTES
			SA FLOW CFM	ESP IN	HP	RA FLOW CFM	ESP IN	HP	HEATING EFF. (%)		COOLING EFF. (%)							
									SENSIBLE	TOTAL	SENSIBLE	TOTAL						
ERV-2	RENEWAIRE	EV300	250	0.75	0.2	250	0.75	0.2	76	70	76	56	MERV 8	MERV 8	120/160	32/24/21	100	1,2,3,4,5
ERV-3	RENEWAIRE	EV300	250	0.75	0.2	250	0.75	0.2	76	70	76	56	MERV 8	MERV 8	120/160	32/24/21	100	1,2,3,4,5

NOTES:

1. PROVIDE EC MOTOR OPTION.

2. PROVIDE EFFICIENCY PER AHRI 1060 STANDARD CONDITIONS.

3. PROVIDE INTEGRAL MOTOR STARTER AND EXTRA SET OF FILTERS.

4. MANUFACTURER INFORMATION IS SHOWN FOR BASIS OF DESIGN ONLY. OTHER MANUFACTURES WILL BE ALLOWED.

5. FOR SEQUENCE OF OPERATIONS SEE SPEC SECTION 230900

AIR HANDLER SCHEDULE													
EQUIP TAG	MFR	MODEL NUMBER	CFM	INTAKE AIR FROM ERV (CFM)	ESP (IN WC)	HP	VOLTS/PHHZ	MCA UNIT ONLY (AMPS)	MOP UNIT ONLY (AMPS)	ELECTRIC HEAT (KW)	ELECT HT MCA (AMPS)	ELECT HT MOP (AMPS)	NOTES
AHU-2	LENNOX	CBX32MV-036	1200	250	1.0	1/2	230/1/60	5.0	15.0	12.5	68	70	1.2,3,4,5
AHU-3	LENNOX	CBX32MV-018/024	800	250	1.0	1/2	230/1/60	5.0	15.0	9.0	50	60	1.2,3,4,5

HEAT PUMP SCHEDULE													
EQUIP TAG	MFR	MODEL NUMBER	COOLING CAPACITY	SEER	HEATING CAPACITY	HEAT COP	COMPRESSOR	OUTDOOR FAN	CFM	OUTDOOR COIL AREA	REFRIGERANT	V/PHHZ	NOTES
HP-2	LENNOX	XP25-036-230	35MBH	21.5	31.6MBH	2.96	SCROLL	1/3	4130	20.73	R-410A	230/160	1.2,3,4
HP-3	LENNOX	XP25-024-230	22.4MBH	22.5	20.8MBH	3.34	SCROLL	1/3	2580	20.73	R-410A	230/160	1.2,3,4

GRILLE REGISTER AND DIFFUSER SCHEDULE										
EQUIP TAG	MFR	MODEL NUMBER	BORDER	PANEL SIZE	NECK SIZE	MAX CFM	THROW	NC	SP	NOTES
S-1	TITUS	301RS	SURFACE	8/8	6/6	100	9	15	0.100	1.2
S-2	TITUS	CT-480	SURFACE	14/6	12/4	100	28	12	0.050	1.3
S-3	TITUS	TDC	SURFACE	12/12	6/6	125	21	16	0.070	1
E-1	TITUS	CT-480	SURFACE	14/6	12/4	100	-	-	0.050	1.3
E-2	TITUS	CT-480	SURFACE	26/6	24/4	150	-	-	0.025	1.3
E-3	TITUS	350RL	SURFACE	10/10	8/8	150	-	-	0.040	1
R-1	TITUS	CT-480	SURFACE	26/6	24/4	200	-	-	0.045	1.3
R-2	TITUS	CT-540	SURFACE	38/6	36/4	750	-	-	0.090	1.3
R-3	TITUS	350RL	SURFACE	10/8	8/6	100	-	-	0.032	1
R-4	TITUS	350RL	SURFACE	16/8	14/6	300	-	-	0.070	1

- GENERAL NOTES:**
- DEMOLISH ALL EXISTING HVAC EQUIPMENT, DUCT, PIPING, AND ACCESSORIES. DUCT, PIPING, AND ACCESSORIES NOT SHOWN. FIELD VERIFY DEMOLITION WORK REQUIRED.
  - FLEXIBLE DUCT IS NOT ALLOWED IN INACCESSIBLE CEILINGS.
  - FOR SEQUENCE OF OPERATIONS SEE SPEC SECTION 230900.
  - ALL ITEMS THAT REQUIRE ACCESS, SUCH AS FOR OPERATING, CLEANING, SERVICING, MAINTENANCE, AND CALIBRATION, SHALL BE EASILY AND SAFELY ACCESSIBLE BY PERSONS STANDING AT FLOOR LEVEL, OR STANDING ON PERMANENT PLATFORMS, WITHOUT THE USE OF PORTABLE LADDERS. EXAMPLES OF THESE ITEMS INCLUDE, BUT ARE NOT LIMITED TO: ALL TYPES OF VALVES, FILTERS AND STRAINERS, TRANSMITTERS, CONTROL DEVICES. PRIOR TO COMMENCING INSTALLATION WORK, REFER CONFLICTS BETWEEN THIS REQUIREMENT AND CONTRACT DRAWINGS TO THE RE/COTR FOR RESOLUTION.
- SPECIFIC NOTES:**
- PROVIDE NEW HEAT PUMP AND 6" CONCRETE BASE ON A COMPACT GRAVEL BASE #4 REBAR 12" OC. BASE DIMENSIONS TO BE 6" LARGER THAN EQUIPMENT IN ALL DIRECTIONS. SEE SPEC SECTION 03 30 53 CAST IN PLACE CONCRETE.
  - PROVIDE REFRIGERANT LINES, FILTER DRIER, AND ACCESSORIES PER MANUFACTURER RECOMMENDATIONS.
  - PROVIDE CONDENSATE DRAIN AND PUMP PER MANUFACTURER'S RECOMMENDATIONS AND INDIRECT DRAIN CONNECTION TO LAV.
  - PROVIDE 7-DAY PROGRAMMABLE TIME CLOCK FOR FAN CONTROL OF ERV.
  - PROVIDE NEW THERMOSTAT AND LOCK BOX. PROGRAM THERMOSTAT FOR WEEKLY SCHEDULE. COORDINATE EXACT SCHEDULE WITH NCA PERSONNEL.
  - PROVIDE WALL CAP AND 2 COATS OF PAINT. COLOR BY ARCHITECT.
  - PROVIDE CONDENSATE DRAIN AND PUMP PER MANUFACTURER'S RECOMMENDATIONS TO NEAREST FLOOR DRAIN.

BID DOCUMENTS

CONSULTANTS:

ARCHITECT/ENGINEERS:

Drawing Title  
Lodge Building  
HVAC Plans

Project Title  
NASHVILLE NATIONAL CEMETERY  
ADMIN DEMOLITION AND FACILITY  
UPGRADES

Project Number  
865CM3029  
Building Number

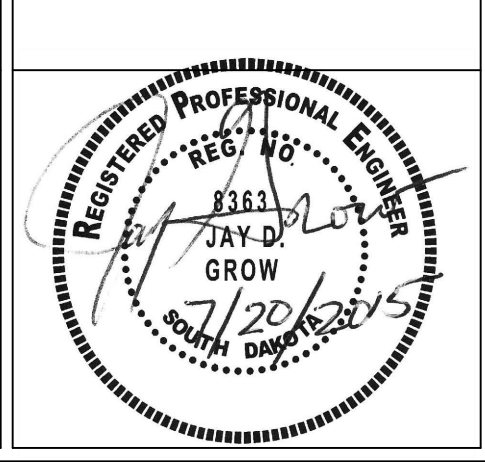
NCA DESIGN  
AND CONSTRUCTION  
SERVICE

Approved Project Director

Location  
MADISON, TENNESSEE

Drawing Number  
M-101L

Department of  
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Dwg. 65 of 90

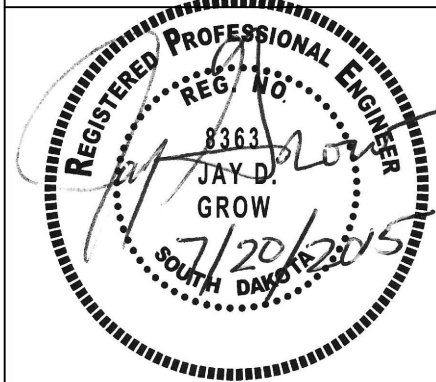
- ## GENERAL DEMOLITION NOTES:
- A. DEMOLISH ALL EXISTING HVAC EQUIPMENT, DUCT, PIPING, AND ACCESSORIES. FIELD WORK AND ACCESSORIES NOT SHOWN. DUCT VERIFY DEMOLITION REQUIREMENTS ON SITE.
- ## SPECIFIC DEMOLITION NOTES:
- 1 DEMOLISH EXISTING PRV, DUCT, AND ACCESSORIES. ROOF PENETRATION TO REMAIN FOR NEW EXHAUST FAN.
  - 2 DEMOLISH EXISTING PRV, DUCT, AND ACCESSORIES. ROOF PENETRATION TO REMAIN FOR NEW INTAKE HOOD.
  - 3 DEMOLISH EXISTING RTU, DUCTWORK, AND ALL ACCESSORIES. STEEL STANDING TO REMAIN FOR NEW HEAT PUMP.
  - 4 DEMOLISH EXISTING FLUE, CAP AND SEAL ROOF PENETRATION WATER TIGHT. PROVIDE INSULATION, ROOFING, AND MAINTAIN ROOF WARRANTY.
  - 5 DEMOLISH EXISTING GAS FURNACE, INTAKE DUCT, VENTING, AND ACCESSORIES.
  - 6 DEMOLISH EXISTING INTAKE HOOD, DUCT, AND ACCESSORIES. ROOF PENETRATION TO REMAIN FOR NEW INTAKE HOOD.
  - 7 DEMOLISH EXISTING INTAKE HOOD, DUCT, AND ACCESSORIES. ROOF PENETRATION TO REMAIN FOR NEW RELIEF HOOD.
  - 8 PROVIDE SOLID METAL 18 GAUGE CROSS BROKEN PANEL TO SEAL WINDOW OPENING AIR TIGHT AFTER DEMOLITION OF EXISTING DUCTWORK. PAINT PANEL TO MATCH EXISTING WINDOW FRAME.
  - 9 DEMOLISH EXISTING GRILLE/DIFFUSER, EXISTING OPENING TO REMAIN FOR NEW GRILLE/DIFFUSER.
  - 10 REMOVE EXISTING FLUE AND FLASHING. PREPARE FOR NEW PIPE PENETRATION

- GENERAL REMODEL NOTES:**
- A. FLEXIBLE DUCT CONNECTIONS SHALL BE ALLOWED AT DIFFUSERS FOR UP TO 5'-0".
  - B. PROVIDE 18 GAUGE CURC ADAPTOR WITH ALL WELDED CONNECTION WHERE NECESSARY. INSTALL NAIL FREE FINISHING IN EXISTING ROOF PENETRATIONS.
  - C. FOR SEQUENCE OF OPERATIONS SEE SPEC SECTION 230900.
  - D. ALL ITEMS THAT REQUIRE ACCESS, SUCH AS FOR OPERATING, CLEANING, SERVICING, MAINTENANCE, AND CALIBRATION, SHALL BE ACCESSIBLE BY SAFETY LADDERS BY PERSONS STANDING AT FLOOR LEVEL, OR STANDING ON PERMANENT PLATFORMS, WITHOUT THE USE OF PORTABLE LADDERS. EXAMPLES OF THESE ITEMS ARE, BUT ARE NOT LIMITED TO ALL TYPES OF VALVES, FILTERS AND STRAINERS, TRANSMITTERS, CONTROL DEVICES. THIS DOES NOT INCLUDE CEILING MOUNTED EQUIPMENT. PRIOR TO COMMENCING INSTALLATION WORK, REFER CONFLICTS BETWEEN THIS REQUIREMENT AND CONTRACT DRAWINGS TO THE RE/CORR FOR RESOLUTION.
  - E. TEMPORARY CEILING PENETRATIONS MAY BE NECESSARY FOR COMPLETION OF MECHANICAL WORK ABOVE, HANG CEILINGS. PROVIDE PATCHING OF EXISTING CEILINGS AND PAINT TO MATCH EXISTING FINISHES AFTER COMPLETION OF MECHANICAL AND BALANCING WORK.

- SPECIFIC REMODEL NOTES:**
- ROUTE RADIANt GAS VENT THROUGH EXISTING GAS FLUE. FIELD VERIFY EXACT LOCATION. PROVIDE WASTE VENT AND CONDENSATE DRAIN FOR RADIANt HEAT SYSTEM PER MANUFACTURER RECOMMENDATIONS. ROUTE ROOF FLASHING AND MAINTAIN ROOF WARRANTY. ROUTE CONDENSATE DRAIN TO NEW SANSITARY SINK TRAP OF BREAK ROOM. SEE 15M-701 FOR DETAIL.**
- PROVIDE REFRIGERANT LINES, FILTER DRIER, CONDENSATE DRAIN PUMP SYSTEM, AND ACCESSORIES TO EVAPORATOR COIL PER MANUFACTURER RECOMMENDATIONS. ROUTE PUMPED CONDENSATE DRAIN TO NEW SANSITARY SINK TRAP OF BREAK ROOM. SEE 5M-701 FOR DETAIL.**
- ROUTE DUCTWORK THROUGH EXISTING ATTIC PENETRATION. FIELD VERIFY EXACT LOCATION.**
- PROVIDE NEW GAS LINE TO NEW FURNACE. PROVIDE SHUT-OFF VALVE AND DRIP LEG AS REQUIRED. PLUMB NEW GAS LINE TO EXISTING GAS LINE. FIELD VERIFY EXACT LOCATION. SEE 5M-701 FOR DETAIL.**
- PROVIDE CONCENTRIC VENT KIT THROUGH ROOF ACCORDING TO MANUFACTURER RECOMMENDATIONS. PROVIDE EPDM PIPE FLASHING AND INSTALL TO MAINTAIN ROOF WARRANTY AND EFFECTIVENESS PER MANUFACTURER RECOMMENDATIONS.**
- PROVIDE INTAKE AND EXHAUST MOTORIZED DAMPERS. INTERLOCK WITH FANS. PROVIDE 7-DAY PROGRAMMABLE TIME CLACK EBY CONTROL. INSTALL EBY AND ACCESSORIES IN ATTIC SPACE.**
- PROVIDE NEW THERMOSTAT AND LOCK BOX. PROGRAM THERMOSTAT FOR WEEKLY SCHEDULE. COORDINATE EXACT SCHEDULE WITH NCA PERSONNEL.**
- TERMINATE A 10X8 DUCT AT CEILING HEIGHT AND A 10X8 DUCT 12" AFF. PROVIDE VOLUME DAMPER AND 1/2" BIRDSOEN ON DUCT. OPENING WITH FLANGED CONNECTION ON DUCT. BALANCE EACH DUCT TO 1/2 AIR VOLUME OF FAN.**
- PROVIDE CONO2 SENSORS AND CONTROL PANEL. MOUNT NO2 SENSOR 2' AFF. AND CO SENSOR 8' AFF. PANEL SHALL ACTIVATE CORRESPONDING EXHAUST FAN(S) AND INTAKE FAN. PROVIDING AREA IS EXO OR NO LEVELS EXCEED SEPT TERMINATE. SEE SPECIFICATIONS.**
- TERMINATE AN 8X8 DUCT AT CEILING HEIGHT AND AN 8X8 DUCT TO 12" AFF. PROVIDE VOLUME DAMPER AND 1/2" BIRDSOEN ON DUCT. OPENING WITH FLANGED CONNECTION ON DUCT. BALANCE EACH DUCT TO 1/2 AIR VOLUME OF FAN.**
- TERMINATE A 10X8 DUCT AT CEILING HEIGHT AND A 10X8 DUCT TO 12" AFF. PROVIDE VOLUME DAMPER AND 1/2" BIRDSOEN ON DUCT. OPENING WITH FLANGED CONNECTION ON DUCT. BALANCE TO 1/2 AIR VOLUME OF FAN.**
- EXTEND AND TERMINATE A 6X6 DUCT 12" BELOW CEILING AND A 6X6 DUCT 12" AFF. PROVIDE VOLUME DAMPER AND 1/2" BIRDSOEN ON DUCT. OPENING WITH FLANGED CONNECTION ON DUCT. BALANCE EACH DUCT TO 1/2 AIR VOLUME. FAN SHALL BE INTERLOCKED TO LIGHT SWITCH.**
- INSTALL FURNACE AND ACCESSORIES IN ATTIC STORAGE SPACE. PROVIDE CONDENSATE DRAIN PER MANUFACTURER RECOMMENDATIONS AND LITTLE GIANT AUTOMATIC CONDENSATE DRAIN SYSTEM. ROUTE CONDENSATE TO SINK TRAP OF BREAK ROOM. PROVIDE DRAIN/SEAL INSULATION ON ANY INTERIOR CONDENSATE PIPING. CONNECT AS REQUIRED ACCORDING TO PLUMBING CODE. SEE 5M-701 FOR DETAIL.**
- PROVIDE MOTORIZED DAMPER IN DUCT DROP THAT SHALL OPEN UPON ACTIVATION OF CORRESPONDING EXHAUST FAN(S) VIA THE CONO2 PANEL OR MANUAL OVERRIDE. SEE SPECIFICATION.**
- PROVIDE RADIANt HEAT SIDE SHELVE ALONG WALL AT THIS LOCATION. SEE 12M-701 FOR DEFLECTOR DETAIL.**
- PROVIDE RADIANt HEAT GAS FIRED BURNER AND GAS PRESSURE DRAIN. PROGRAM ACCORDING TO MANUFACTURER INSTRUCTIONS. MOUNT 4" BELOW STRUCTURE. SEE 11M-701 FOR BURNER DETAIL.**
- PROVIDE VACUUM PUMP AT THIS LOCATION. SEE 13M-701 FOR PUMP DETAIL.**
- PROVIDE 7-DAY PROGRAMMABLE THERMOSTAT AND LOCK BOX THAT SHALL ACTIVATE RADIANt HEAT SYSTEM IN CORRESPONDING AREA. PROGRAM THERMOSTAT FOR WEEKLY SCHEDULE. COORDINATE EXACT SCHEDULE WITH NCA PERSONNEL.**
- LOCATE FAN A MINIMUM OF 3 FEET FROM ALL SMOKE DETECTORS. COORDINATE LOCATIONS WITH ALL TRADES.**
- TERMINATE CONDENSATE DRAIN(S) TO SANITARY SEWER OF NEW BREAK ROOM SINK FIXTURE.**

[illegible]

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Drawing Title	Maintenance Building Mechanical Demolition and HVAC Plans
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Approved: Project Director

Project Title	NASHVILLE NATIONAL CEMETERY ADMIN DEMOLITION AND FACILITY UPGRADES
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Location	MADISON, TENNESSEE
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Date  
7/20/2015

Checked
.JG

Drawn	
MK	

Project Number

Building Number

Drawing Number

**M-100M**

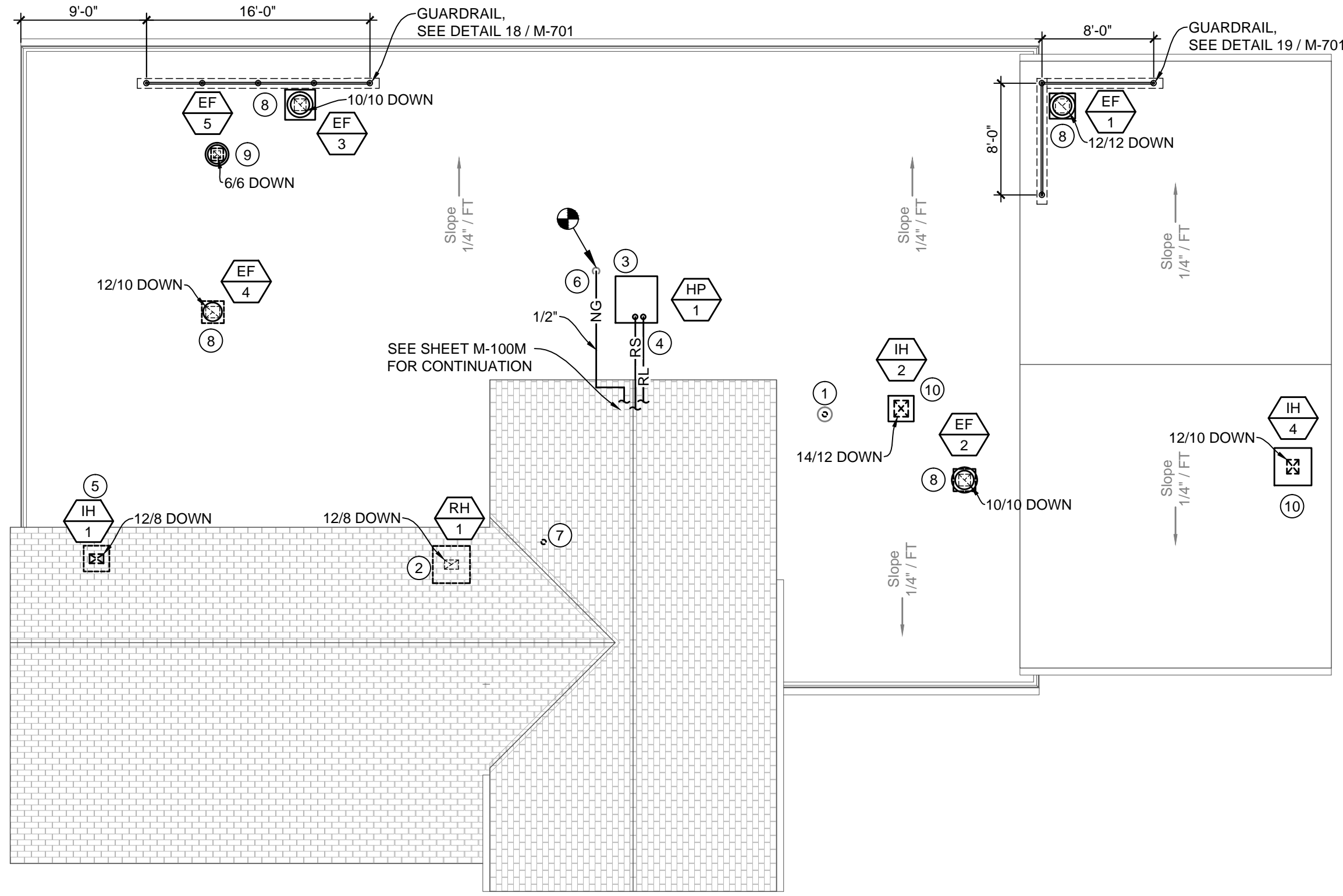
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NCA DESIGN  
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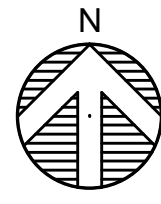




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one half inch = one foot  
one quarter inch = one foot  
three eighths inch = one foot  
one eighth inch = one foot  
one eighth inch = one foot



1 ROOF HVAC PLAN  
SCALE: 1/8" = 1'-0"  
MAINTENANCE BUILDING



FURNACE SCHEDULE															
EQUIP TAG	MFGR	MODEL NUMBER	CFM	INTAKE AIR FROM ERV (CFM)	ESP (IN WC)	HP	VOLTS/PH/Hz	FLA (AMPS)	MOCP (AMPS)	GAS HEAT INPUT (MBH)	GAS HEAT OUTPUT (MBH)	FILTER	REFRIGERANT	DIMMEN H/W/D INCHES (LBS)	NOTES
F-1	LENNOX	EL296UH045XV24B	850	350	1.0	1/2	120/1/60	7.7	15.0	44	42	25/16/1	R-410A	33/18/30 130	1,2,3,4,5

NOTES:

1. PROVIDE MANUFACTURER'S 7-DAY PROGRAMMABLE THERMOSTAT WITH PROGRAMMABLE FAN CONTROL, DUAL FUEL KIT WITH OUTDOOR THERMOSTAT, AND SIDE RETURN FILTER RACK WITH 1 SET OF EXTRA FILTERS. FANS SHALL OPERATE ON HIGH SPEED FOR BOTH HEATING AND COOLING.
2. PROVIDE SINGLE POINT ELECTRICAL CONNECTION AND INTEGRAL STARTER.
3. PROVIDE LITTLE GIANT 554405 AUTOMATIC CONDENSATE REMOVAL PUMP, 2" WATER PROOF DRIP PAN, WATER SENSOR, AND CONCENTRIC WASTE VENT KIT AND WITH EMERGENCY SHUTOFF SWITCH.
4. MANUFACTURER INFORMATION IS SHOWN FOR BASIS OF DESIGN ONLY. OTHER MANUFACTURES WILL BE ALLOWED.
5. PROVIDE WITH CH33-42B COIL.

HEAT PUMP SCHEDULE																	
EQUIP TAG	MFGR	MODEL NUMBER	COOLING CAPACITY	SEER	HEATING CAPACITY	HEAT COP	COMPRESSOR	OUTDOOR FAN	CFM	OUTDOOR COIL AREA	REFRIGERANT	V/PH/Hz	MCA (AMPS)	MOCp (AMPS)	DIMMEN H/W/D	WEIGHT (LBS)	NOTES
HP-1	LENNOX	XP25-024-230	23MBH	22.5	21.4MBH	3.1	SCROLL										
								1/3	2580	20.73	R-410A	230/1/60	15.7	25	37/40/36	300	1,2,3

NOTES:

1. PROVIDE LOUVERED HAIL GUARDS ON OUTDOOR COIL AND FILTER/DRYER.

2. PROVIDE INTEGRAL STARTER AND DISCONNECT.

3. MANUFACTURER INFORMATION IS SHOWN FOR BASIS OF DESIGN ONLY. OTHER MANUFACTURES WILL BE ALLOWED.

ENERGY RECOVERY VENTILATOR SCHEDULE																		
EQUIP TAG	MFGR	MODEL NUMBER	SUPPLY FAN			EXHAUST FAN			ENERGY RECOVERY PERFORMANCE				EXHAUST FILTERS	SUPPLY FILTERS	VOLTAGE V/PH/Hz	L/W/H (INCHES)	WEIGHT (LBS)	NOTES
			SA FLOW CFM	ESP (IN)	HP	RA FLOW CFM	ESP (IN)	HP	HEATING EFF. (%)		COOLING EFF. (%)							
									SENSIBLE	TOTAL	SENSIBLE	TOTAL						
ERV-1	RENEWAIRE	EV450IN	350	0.5	3/4	350	1.0	3/4	76	72	76	62	MERV 8	MERV 8	230/1/60	45/16/34	150	1,2,3,4

NOTES:

1. PROVIDE EC MOTOR OPTION.
2. PROVIDE EFFICIENCY PER AHRI 1060 STANDARD CONDITIONS.
3. PROVIDE INTEGRAL MOTOR STARTER AND 1 SET OF EXTRA FILTERS.
4. MANUFACTURER INFORMATION IS SHOWN FOR BASIS OF DESIGN ONLY. OTHER MANUFACTURES WILL BE ALLOWED.

GRILLE REGISTER AND DIFFUSER SCHEDULE										
EQUIP TAG	MFGR	MODEL NUMBER	BORDER	PANEL SIZE	NECK SIZE	MAX CFM	THROW	NC	SP	NOTES
S-1	TITUS	MCD	LAY-IN	24/24	8/8	200	11	19	0.032	1
S-2	TITUS	301RS	SURFACE	10/10	8/8	250	13	10	0.080	1,2
R-1	TITUS	50F	LAY-IN	24/24	-	300	-	-	0.040	1
E-1	TITUS	50F	LAY-IN	24/24	-	150	-	-	0.045	1
E-2	TITUS	50F	SURFACE	10/10	8/8	250	-	-	0.030	1

NOTES:

1. MANUFACTURER INFORMATION IS SHOWN FOR BASIS OF DESIGN ONLY. OTHER MANUFACTURES WILL BE ALLOWED.
2. PERFORMANCE SELECTED AT 45 DEG. BLADE DEFLECTION.

GRAVITY INTAKE/RELIEF HOOD SCHEDULE										
EQUIP TAG	MFGR	MODEL NUMBER	SERVICE	CFM	SP (IN)	WIDTH (IN)	HEIGHT (IN)	DEPTH (IN)	THROAT AREA (SF)	NOTES
IH-1	GREENHECK	FGI	INTAKE	1,000	0.07	16	16	16	1.78	1
IH-2	GREENHECK	FGI	INTAKE	1,000	0.07	16	16	16	1.78	1
IH-3	GREENHECK	FGI	INTAKE	600	0.09	12	12	14	1.00	1
IH-4	GREENHECK	FGI	INTAKE	600	0.09	12	12	14	1.00	1
RH-1	GREENHECK	FGR	RELIEF	500	0.03	14	14	18	1.36	1

NOTES:

1. MANUFACTURER INFORMATION IS SHOWN FOR BASIS OF DESIGN ONLY. OTHER MANUFACTURES WILL BE ALLOWED.

EXHAUST FAN SCHEDULE												
EQUIP TAG	MFGR	MODEL NUMBER	TYPE	CFM	SP (IN)	HP	FAN RPM	VOLTAGE (V/PH/Hz)	SONES	DIMMEN (INCHES)	WEIGHT (LBS)	NOTES
EF-1	GREENHECK	G-090-VG	ROOF	620	0.25	0.06	1533	115/1/60	7.40	22/22/17	50	1,2,4
EF-2	GREENHECK	G-090-VG	ROOF	500	0.20	0.04	1340	115/1/60	5.40	22/22/17	50	1,2,4
EF-3	GREENHECK	G-090-VG	ROOF	500	0.20	0.04	1340	115/1/60	5.40	22/22/17	50	1,2,4,5
EF-4	GREENHECK	G-095-VG	ROOF	600	0.20	0.05	1224	115/1/60	5.70	22/22/17	50	1,2,4
EF-5	GREENHECK	G-090-D	ROOF	100	0.25	0.02	1550	115/1/60	3.60	20/20/14	15	1,3,4

NOTES:

1. ECM MOTOR WITH 0-10V INPUT AND DISCONNECT SWITCH.
2. PROVIDE WELDED ROOF CURB ADAPTOR AND BACK DRAFT DAMPER.
3. PROVIDE ROOF CURB, CURB SEAL AND BACK DRAFT DAMPER.
4. MANUFACTURE INFORMATION IS SHOWN FOR BASIS OF DESIGN ONLY. OTHER MANUFACTURES WILL BE ALLOWED.
5. ALL ALUMINUM CONSTRUCTION TEFC.

RADIANT HEAT SCHEDULE (GAS)										
EQUIP TAG	ITEM	MAKE	MODEL NUMBER	HEAT CAPACITY MBH	VOLTAGE V/PH/Hz	MOTOR HP	FLA (AMPS)	DIMMS L/W/D (INCHES)	WEIGHT (LBS)	NOTES
B-4	GAS BURNER	CORAYVAC	B-4	40	120/1/60	-	0.3	11/7/7	19	1,2
EP-100	PUMP	CORAYVAC	EP-100	-	120/1/60	1/3	4.8	14/14/12	75	1,2

NOTES:

1. MANUFACTURER INFORMATION IS SHOWN FOR BASIS OF DESIGN ONLY. OTHER MANUFACTURES WILL BE ALLOWED.
2. PROVIDE 7-DAY PROGRAMMABLE THERMOSTAT AND LOCK BOX FOR EACH ROOM CONTAINING RADIANT HEAT SYSTEM.

CEILING FAN SCHEDULE										
EQUIP TAG	MAKE	MODEL	BLADE SWEEP (IN)	COLOR	VOLTAGE V/PH/Hz	MOTOR FLA	MOTOR WATTS	RPM	WEIGHT (LBS)	NOTES
FAN-1	LEADING EDGE	36201	36	WHITE	120/1/60	0.65	75	395	20	1,2,3,4

NOTES:

1. PROVIDE OPTIONAL SOLID STATE MOTOR SPEED CONTROL.
2. MOUNTING HARDWARE / KIT.
3. VARIABLE SPEED SWITCH TO CONTROL UP TO 3 FANS.
4. MANUFACTURER INFORMATION IS SHOWN FOR BASIS OF DESIGN ONLY. OTHER MANUFACTURES WILL BE ALLOWED.

#### GENERAL NOTES:

1. FLEXIBLE DUCT CONNECTIONS SHALL BE ALLOWED AT DIFFUSERS FOR UP TO 5'-0".
2. PROVIDE 18 GAGE CURB ADAPTOR WITH ALL WELDED CONSTRUCTION WHERE NECESSARY TO INSTALL NEW EQUIPMENT IN EXISTING ROOF PENETRATIONS.
3. FOR SEQUENCE OF OPERATIONS SEE SPEC SECTION 230900.
4. ALL ITEMS THAT REQUIRE ACCESS, SUCH AS FOR OPERATING, CLEANING, SERVICING, MAINTENANCE, AND CALIBRATION, SHALL BE EASILY AND SAFELY ACCESSIBLE BY PERSONS STANDING AT FLOOR LEVEL OR STANDING ON PERMANENT PLATFORMS, WITHOUT THE USE OF PORTABLE LADDERS. EXAMPLES OF THESE ITEMS INCLUDE, BUT ARE NOT LIMITED TO: ALL TYPES OF VALVES, FILTERS AND STRAINERS, TRANSMITTERS, CONTROL DEVICES. THIS DOES NOT INCLUDE CEILING MOUNTED EQUIPMENT. PRIOR TO COMMENCING INSTALLATION WORK, REFER CONFLICTS BETWEEN THIS REQUIREMENT AND CONTRACT DRAWINGS TO THE RE/COTR FOR RESOLUTION.

#### SPECIFIC NOTES:

1. ROUTE RADIANT GAS VENT THROUGH EXISTING HOLE. FIELD VERIFY EXACT LOCATION. PROVIDE WASTE VENT SYSTEM FOR RADIANT HEAT SYSTEM PER MANUFACTURER RECOMMENDATIONS AND ROOF FLASHING WITH STORM COLLAR. SEE 15M-701 FOR DETAIL. INSTALL TO MAINTAIN ROOF WARRANTY AS REQUIRED.
2. PROVIDE NEW RELIEF HOOD AND CURB AT THIS APPROXIMATE LOCATION. PROVIDE ALL WELDED CURB ADAPTOR TO FIT NEW CURB AND HOOD IF NECESSARY. VERIFY EXACT LOCATION AND MAINTAIN ROOF WARRANTY. SEE 2M-701 FOR DETAIL.
3. PROVIDE NEW HEAT PUMP AND USE EXISTING IRON BASE. CLEAN AND PAINT PER SPECIFICATION 09B100 PAINTING. PROVIDE WELDED AND PAINTED ANGLE IRON FOR NEW HEAT PUMP BASE IF NECESSARY. FIELD VERIFY EXACT LOCATION OF EXISTING BASE.
4. PROVIDE REFRIGERANT LINES, FILTER DRIER, AND ACCESSORIES TO HEAT PUMP PER MANUFACTURER RECOMMENDATIONS. ROUTE REFRIGERANT PIPING THROUGH WINDOW FRAME PANE. SEE 5M-701 FOR FURNACE DETAIL.
5. PROVIDE NEW INTAKE HOOD AND CURB AT EXISTING ROOF PENETRATION. FIELD VERIFY EXACT LOCATION. PROVIDE ALL WELDED CURB ADAPTOR TO FIT NEW CURB AND HOOD IF NECESSARY. MAINTAIN ROOF WARRANTY. SEE 2M-701 FOR DETAIL.
6. PROVIDE NEW GAS LINE TO NEW FURNACE ACROSS ROOF AND THROUGH WINDOW FRAME PANEL. PLUMB NEW GAS LINE TO EXISTING 1-1/4" GAS LINE. PROVIDE ROOF SUPPORTS AS SPECIFIED. FIELD VERIFY EXACT LOCATION. SEE 5M-701 FOR DETAIL.
7. PROVIDE CONCENTRIC VENT KIT THROUGH ROOF ACCORDING TO MANUFACTURER RECOMMENDATIONS. PROVIDE EPDM PIPE FLASHING AND INSTALL TO MAINTAIN ROOF WARRANTY AND EFFECTIVENESS PER MANUFACTURES RECOMMENDATIONS.
8. PROVIDE NEW EXHAUST FAN AT EXISTING ROOF PENETRATION. FIELD VERIFY EXACT LOCATION. PROVIDE ALL WELDED CURB ADAPTOR TO FIT NEW CURB AND FAN IF NECESSARY. MAINTAIN ROOF WARRANTY. SEE 3M-701 FOR DETAIL.
9. PROVIDE NEW EXHAUST FAN AND CURB PROVIDE FULL DEPTH HEADERS AT ROOF PENETRATION FOR ROOF DECK SUPPORT. INTERLOCK EXHAUST FAN TO START WHEN LIGHT SWITCH IS TURNED ON IN FLAMMABLE STORAGE ROOM. PROVIDE ROOFING AND MAINTAIN ROOF WARRANTY. SEE 3M-701 FOR DETAIL.
10. PROVIDE NEW INTAKE HOOD AT EXISTING ROOF PENETRATION. PROVIDE ALL WELDED CURB ADAPTOR TO FIT NEW CURB AND HOOD IF NECESSARY. MAINTAIN ROOF WARRANTY.

#### CONSULTANTS:

#### ARCHITECT/ENGINEERS:

Drawing Title  
Maintenance Building  
Mechanical Roof Plan and Schedules

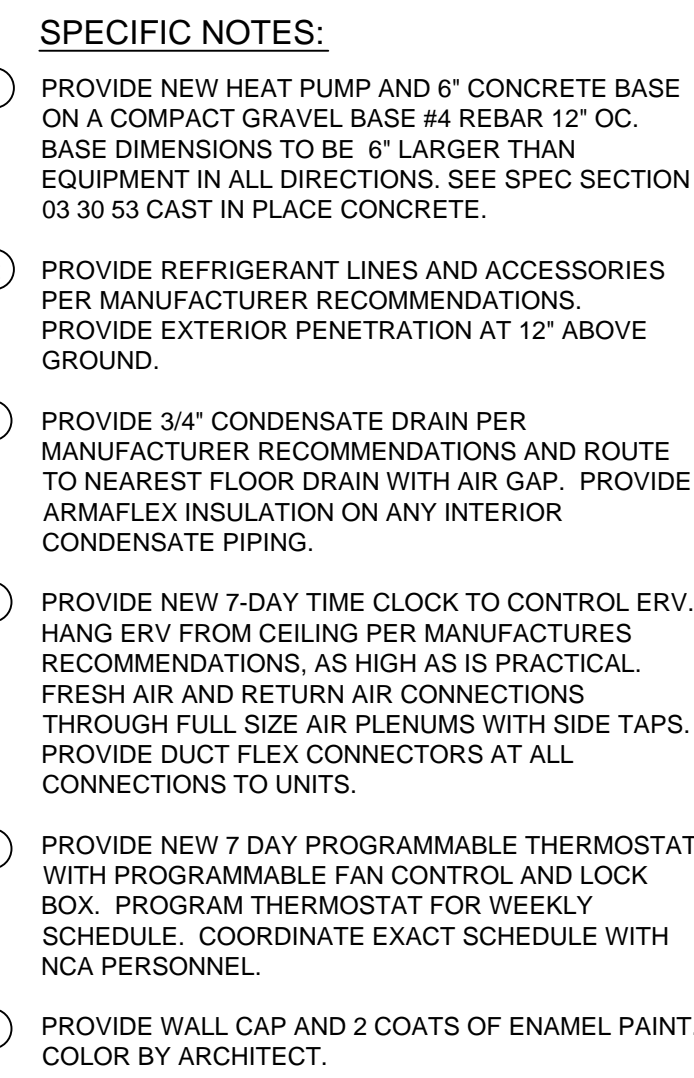
Project Title  
NASHVILLE NATIONAL CEMETERY  
ADMIN DEMOLITION AND FACILITY  
UPGRADES

Project Number  
865CM3029  
Building Number

Drawing Number  
M-101M  
Dwg. 67 of 90

NCA DESIGN  
AND CONSTRUCTION  
SERVICE

Department of  
Veterans Affairs



NOTES:

1. PROVIDE EC MOTOR OPTION.
2. PROVIDE EFFICIENCY PER AHRI 1060 STANDARD CONDITIONS.
3. PROVIDE INTEGRAL MOTOR STARTER, 7-DAY PROGRAMMABLE THERMOSTAT, AND EXTRA SET OF FILTERS.
4. MANUFACTURER INFORMATION IS SHOWN FOR BASIS OF DESIGN ONLY. OTHER MANUFACTURES WILL BE ALLOWED.

NOTES:

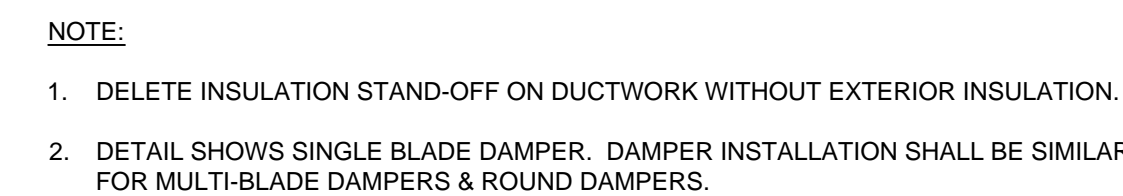
1. PROVIDE ELECTRIC HEAT, SIDE RETURN UNIT STAND, MANUFACTURER'S 7-DAY PROGRAMMABLE THERMOSTAT WITH PROGRAMMABLE FAN CONTROL, AND SIDE RETURN FILTER RACK WITH SPARE SET OF FILTERS
2. PROVIDE INTEGRAL STARTER.
3. PROVIDE CONDENSATE DRAIN KIT PER MANUFACTURE RECOMMENDATIONS.
4. MANUFACTURER INFORMATION IS SHOWN FOR BASIS OF DESIGN ONLY. OTHER MANUFACTURES WILL BE ALLOWED.

NOTES: 1. PROVIDE LOUVERED HAIL GUARDS ON OUTDOOR COIL AND FILTER/DRYER.  
2. PROVIDE INTEGRAL STARTER.  
3. MANUFACTURER INFORMATION IS SHOWN FOR BASIS OF DESIGN ONLY. OTHER MANUFACTURES WILL BE ALLOWED

NOTES: 1. MANUFACTURER INFORMATION IS SHOWN FOR BASIS OF DESIGN ONLY. OTHER MANUFACTURES WILL BE ALLOWED  
2. PERFORMANCE SELECTED AT 45 DEG. BLADE DEFLECTION.



Department of  
Veterans Affairs

CONSULTANTS:

Approved: Project Director

Project Title	NASHVILLE NATIONAL CEMETERY ADMIN DEMOLITION AND FACILITY UPGRADES
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Location	MADISON, TENNESSEE

Date	7/20/2015	Checked	JG
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Project Number	865CM3029
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Building Number

[illegible]

Drawing Number

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M-7

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Eng. 30 3

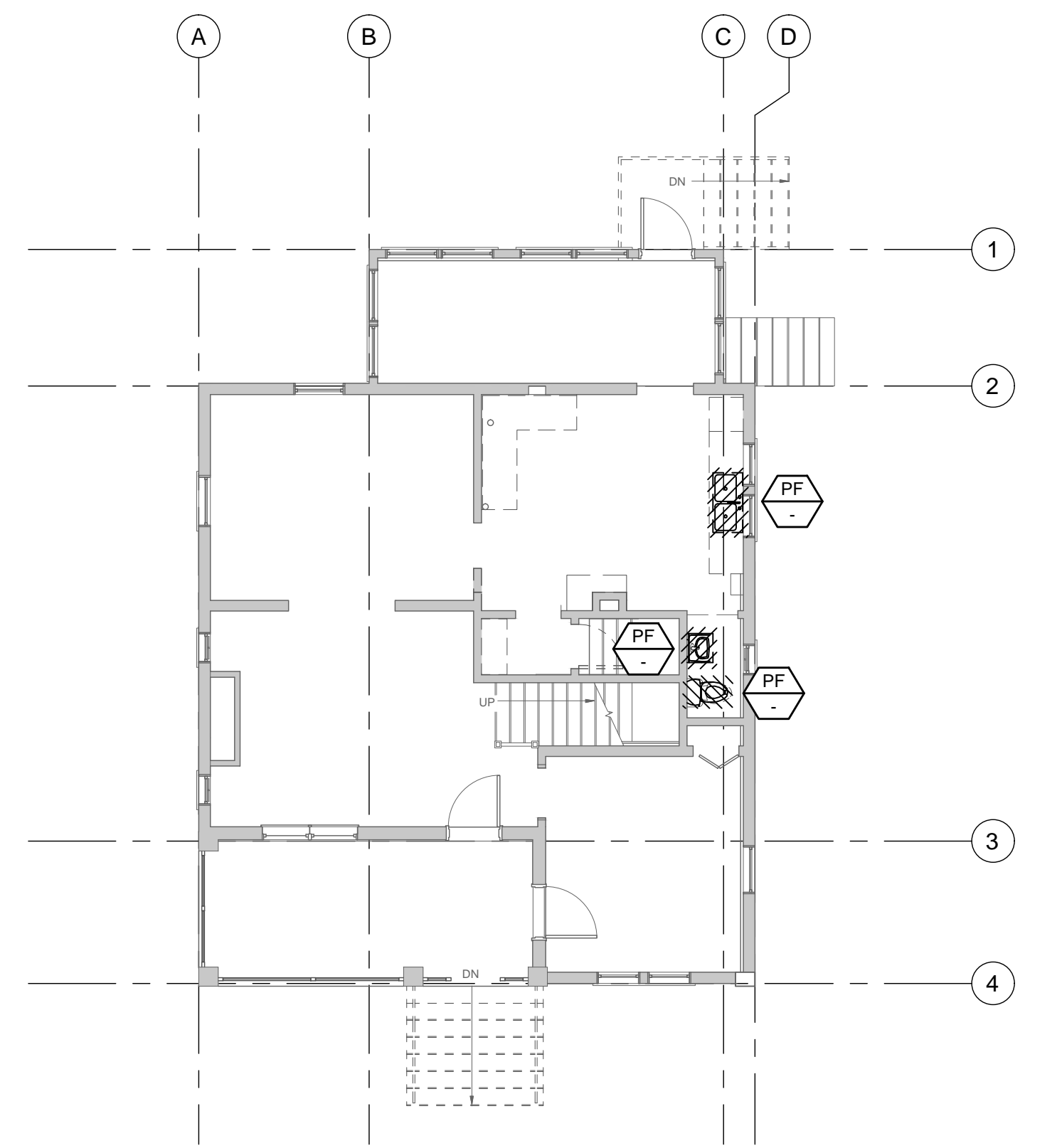
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NCA DESIGN  
AND CONSTRUCTION  
SERVICE

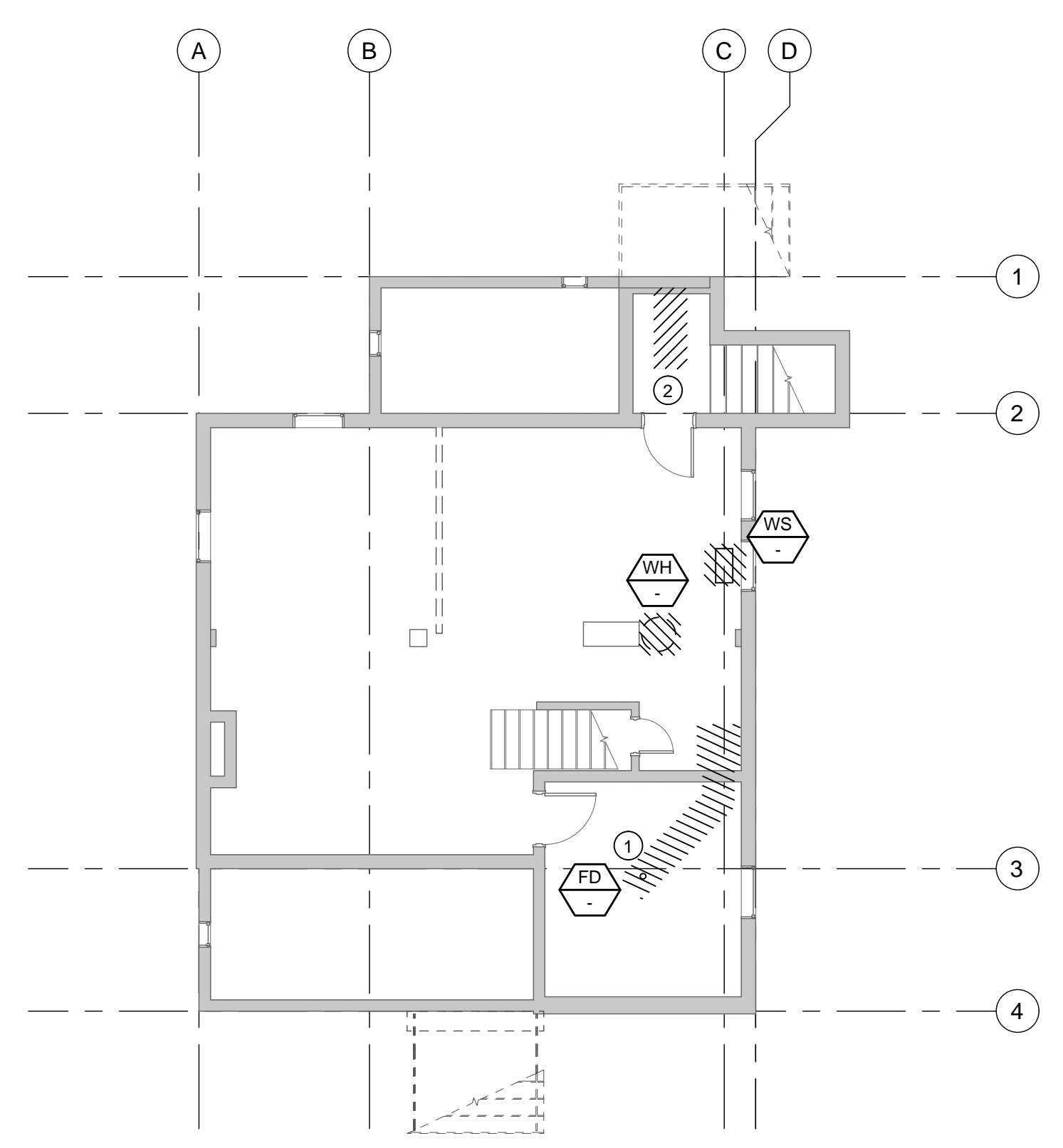




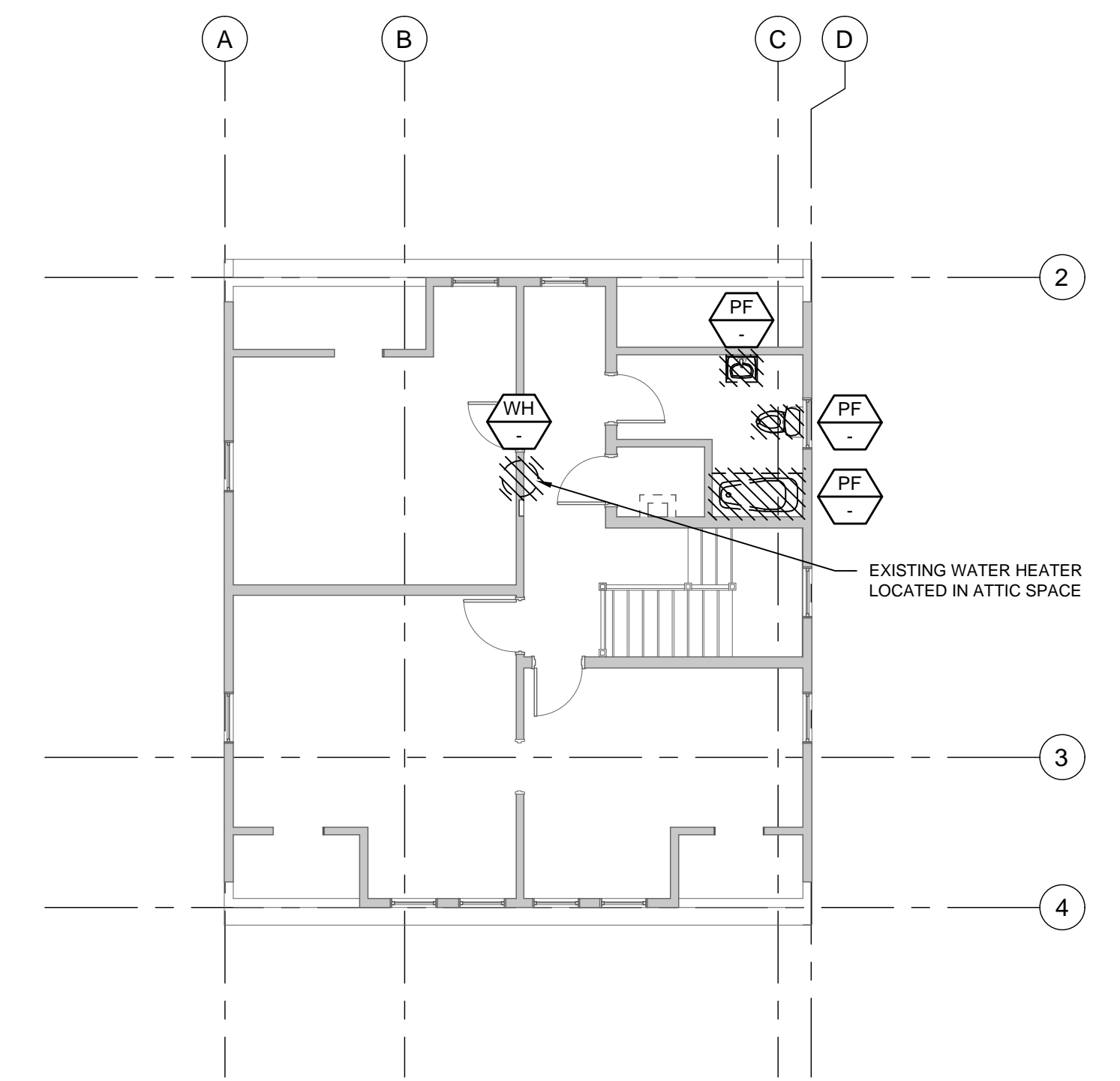
three inches = one foot  
one and one half inches = one foot  
one inch = one foot  
three quarters inch = one foot  
one half inch = one foot  
three eighths inch = one foot  
one quarter inch = one foot  
one eighth inch = one foot



**2 FIRST FLOOR PLUMBING DEMOLITION PLAN**  
SCALE: 1/8" = 1'-0"  
LODGE BUILDING



**1 BASEMENT FLOOR PLUMBING DEMOLITION PLAN**  
SCALE: 1/8" = 1'-0"  
LODGE BUILDING



**3 SECOND FLOOR PLUMBING DEMOLITION PLAN**  
SCALE: 1/8" = 1'-0"  
LODGE BUILDING

DRAWINGS ABBREVIATIONS:					
Ø	DIAMETER	HP	HORSEPOWER	RL	REFRIGERANT LIQUID LINE
AE	ARCHITECT / ENGINEER	HVAC	HEATING, VENTILATING, AIR CONDITIONING	RH	RELATIVE HUMIDITY
AC	AIR CONDITION (ING. ED)	HW	HOT WATER	RPM	REVOLUTIONS PER MINUTE
AFF	ABOVE FINISHED FLOOR	HZ	HERTZ	RS	REFRIGERANT SUCTION
AHU	AIR-HANDLING UNIT	IN	INCHES	RTU	ROOF TOP UNIT
AMP	AMPERE (AMP, AMPS, AMPERAGE)	IN WC	INCH WATER COLUMN	SA	SUPPLY AIR
APD	AIR PRESSURE DROP	KW	KILOWATT	SAT	SUPPLY AIR TEMPERATURE
APPROX	APPROXIMATE	KWH	KILOWATT HOUR	SEN	SENSIBLE HEAT
ARCH	ARCHITECT/ARCHITECTURAL	LAT	LEAVING AIR TEMPERATURE	SF	SUPPLY FAN
B	BOILER	LBS	POUNDS	SP	SUMP PUMP
BHP	BRAKE HORSEPOWER	LWB	LEAVING WET BULB	SP	STATIC PRESSURE
BTU	BRITISH THERMAL UNIT	LWT	LEAVING WATER TEMPERATURE	SPEC	SPECIFICATION
BTUH	BRITISH THERMAL UNIT PER HOUR	MAT	MIXED AIR TEMPERATURE	TAB	TESTING, ADJUSTING, BALANCE
CFM	CUBIC FEET PER MINUTE	MBH	THOUSAND BTU'S/HR	TDH	TOTAL DYNAMIC HEAD
CO	CLEANOUT	MCA	MINIMUM BRANCH CIRCUIT AMPACITY	TSP	TOTAL STATIC PRESSURE
CO2	CARBON DIOXIDE	MECH	MECHANICAL	TSTAT	THERMOSTAT
COP	COEFFICIENT OF PERFORMANCE	MERV	MINIMUM EFFICIENCY REPORTING VALUE	V	VOLTS
CWDC	CHILLED WATER COOLING COIL	MFR	MANUFACTURER	SQ FT	SQUARE FEET
CWP	CONDENSER WATER PUMP	MIN	MINIMUM	W	WATTS
CWR	CONDENSER WATER RETURN (TO COOLING TOWER)	MISC	MISCELLANEOUS	Wb	WET-BULB (TEMPERATURE)
DEG	DEGREE	MM	MILLIMETER	WH	WATER HEATER
DEMO	DEMOLITION	NC	NOISE CRITERIA	WS	WATER SOFTNER
DX	DIRECT EXPANSION	NG	NATURAL GAS	WT	WEIGHT
EA	EXHAUST AIR	NTS	NOT TO SCALE		
EAT	ENTERING AIR TEMPERATURE	OA	OUTSIDE AIR		
EER	ENERGY EFFICIENCY RATIO	P	PUMP		
EF	EXHAUST FAN	PD	PRESSURE DROP OR DIFFERENCE		
ELEC	ELECTRICAL	PH	PHASE (ELECTRICAL)		
ENT	ENTERING	PPM	PARTS PER MILLION		
ERV	ENERGY RECOVERY VENTILATOR	PRESS	PRESSURE		
ET	EXPANSION TANK	PRV	PRESSURE REDUCING VALVE		
EWB	ENTERING WET BULB	PSI	POUNDS PER SQUARE INCH		
EWT	ENTERING WATER TEMPERATURE	PSIG	POUNDS PER SQUARE INCH-GAGE		
F	FAHRENHEIT	PVC	POLYVINYL CHLORIDE		
FPM	FEET PER MINUTE	GAL	GALLONS		
FT	FOOT OR FEET	GPM	GALLONS PER MINUTE		
GAL	GALLONS	HD	HEAD		
GPM	GALLONS PER MINUTE	HP	HEAT PUMP		
HD	HEAD				
HP	HEAT PUMP				

PIPING SYMBOLS			
CD	CONDENSATE DRAIN	GUAGE	
J	TOP CONNECTION	PUMP	
S	BOTTOM CONNECTION	FLEXIBLE PIPE CONNECTION	
J	SIDE CONNECTION	REDUCER	
J	CAPPED OUTLET	SOLENOID VALVE	
↗	RISE OR DROP IN PIPE	STRAINER	
	UNION	RELIEF VALVE	
○	PIPE UP	TEST PLUG	
○	PIPE DOWN	THERMOMETER	
●	POINT OF CONNECTION BETWEEN NEW AND EXISTING WORK	3-WAY CONTROL VALVE	
M	MANUAL VALVE	2-WAY CONTROL VALVE	
M	WATER METER	STEAM TRAP	
A	AQUASTAT	UNION	
✓	CHECK VALVE	REDUCED PRESSURE ZONE BACKFLOW PREVENTER	
✓	BALANCING VALVE	GRILLE, REGISTER, DIFFUSER TAG WITH CFM	
✓	FLOW CONTROL VALVE	EQUIPMENT TAG	
X	PIPE ANCHOR	MECHANICAL PLAN NOTE	
✓	PRESSURE REDUCING VALVE		
---	PIPE GUIDE		
---	PIPE PITCH		

**GENERAL PLUMBING NOTES:** (APPLIES TO ALL SHEETS)

A. ALL EQUIPMENT, MATERIALS, AND ARTICLES INCORPORATED IN THE WORK SHALL BE NEW AND OF COMPARABLE QUALITY AS SPECIFIED. ALL WORKMANSHIP SHALL BE FIRST-CLASS AND SHALL BE PERFORMED BY MECHANICS SKILLED AND REGULARLY EMPLOYED IN THEIR RESPECTIVE TRADES.

B. THESE DRAWINGS ARE GENERAL IN NATURE. ALTHOUGH EVERY ATTEMPT HAS BEEN MADE TO INDICATE THE EXACT ROUTING AND LOCATION OF PROPOSED SYSTEMS, NOT ALL OFFSETS, REQUIRED FITTINGS AND/OR CONDITIONS CAN BE SHOWN. THE CONTRACTOR SHALL COORDINATE WORK AND MAKE REQUIRED CHANGES TO THE ROUTING IN ORDER TO AVOID CONFLICTS WITHOUT ANY INCREASED COST TO THE OWNER.

C. SYSTEMS DESIGNATED TO BE PROVIDED AND INSTALLED WITHIN THESE CONTRACT DOCUMENTS ARE INTENDED TO BE COMPLETE AND OPERATIONAL. PROVIDE EVERYTHING ESSENTIAL FOR THE COMPLETION OF THE WORK TO MAKE THE SYSTEM READY FOR NORMAL AND PROPER OPERATION, INCLUDING ALL WORK OR MATERIALS NOT DIRECTLY SHOWN ON THE DRAWINGS OR IN THE SPECIFICATIONS, BUT NECESSARY FOR THE PROPER OPERATION OF THE SYSTEM.

D. CONTRACTOR TO CONFIRM LOCATIONS OF EXISTING PIPING.

E. ALL PIPING INSULATION SERVING DOMESTIC COLD WATER PIPING SHALL BE INSTALLED WITH UNBROKEN VAPOR BARRIERS AS PER SPECIFICATIONS. CONTRACTOR TO USE METAL SADDLES AND STRAPS ON EXTERIOR OF INSULATION FOR SUPPORT OF PIPING AT HANGERS, UNISTRUT, ETC.

F. ISOLATE ALL COPPER PIPE FROM BEARING ON FERROUS HANGERS, ETC. WITH ELECTRICALLY INSULATING MATERIALS AS SPECIFIED. USE DIELECTRIC UNIONS IN CONNECTION OF ALL COPPER PIPING TO FERROUS PIPING AS SPECIFIED.

**GENERAL NOTES:**

A. DEMOLISH ALL EXISTING PLUMBING EQUIPMENT, PIPING, AND ACCESSORIES. PIPING AND ACCESSORIES NOT SHOWN. FIELD VERIFY DEMOLITION WORK REQUIRED.

**SPECIFIC NOTES:**

① DEMOLISH EXISTING FLOOR DRAIN, SAW CUT FLOOR AND CAP EXISTING PIPING.

② SAWCUT FLOOR FOR NEW AREA DRAIN.

Revisions

Date

CONSULTANTS:

ARCHITECT/ENGINEERS:

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Drawing Title

Lodge Building  
Plumbing Demolition Plans

Approved Project Director

Project Title

NASHVILLE NATIONAL CEMETERY  
ADMIN DEMOLITION AND FACILITY  
UPGRADES

Location  
MADISON, TENNESSEE

Date  
7/20/2015

Checked  
JG

Drawn  
MK

Project Number

865CM3029

Building Number

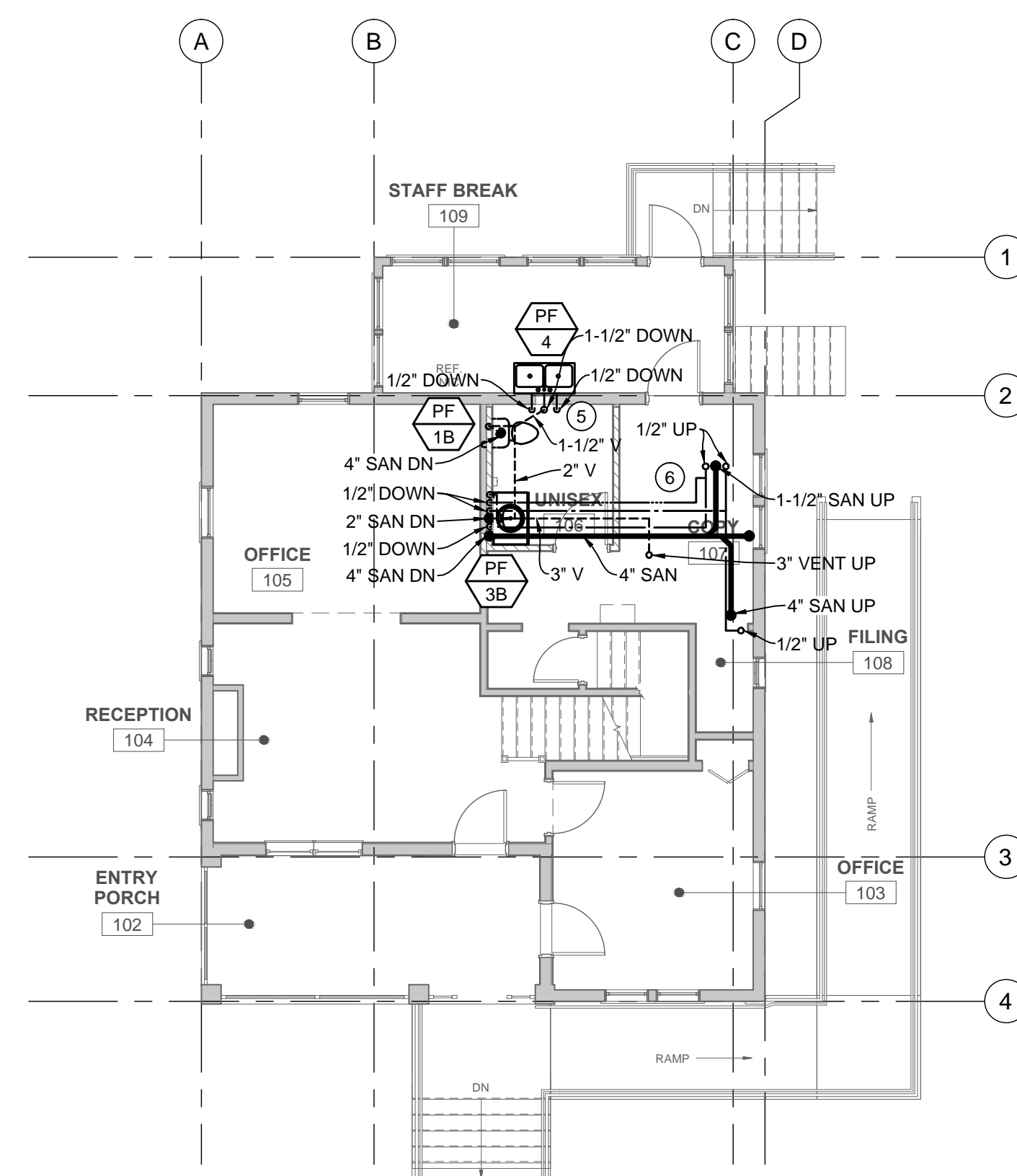
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Dwg. 70 of 90

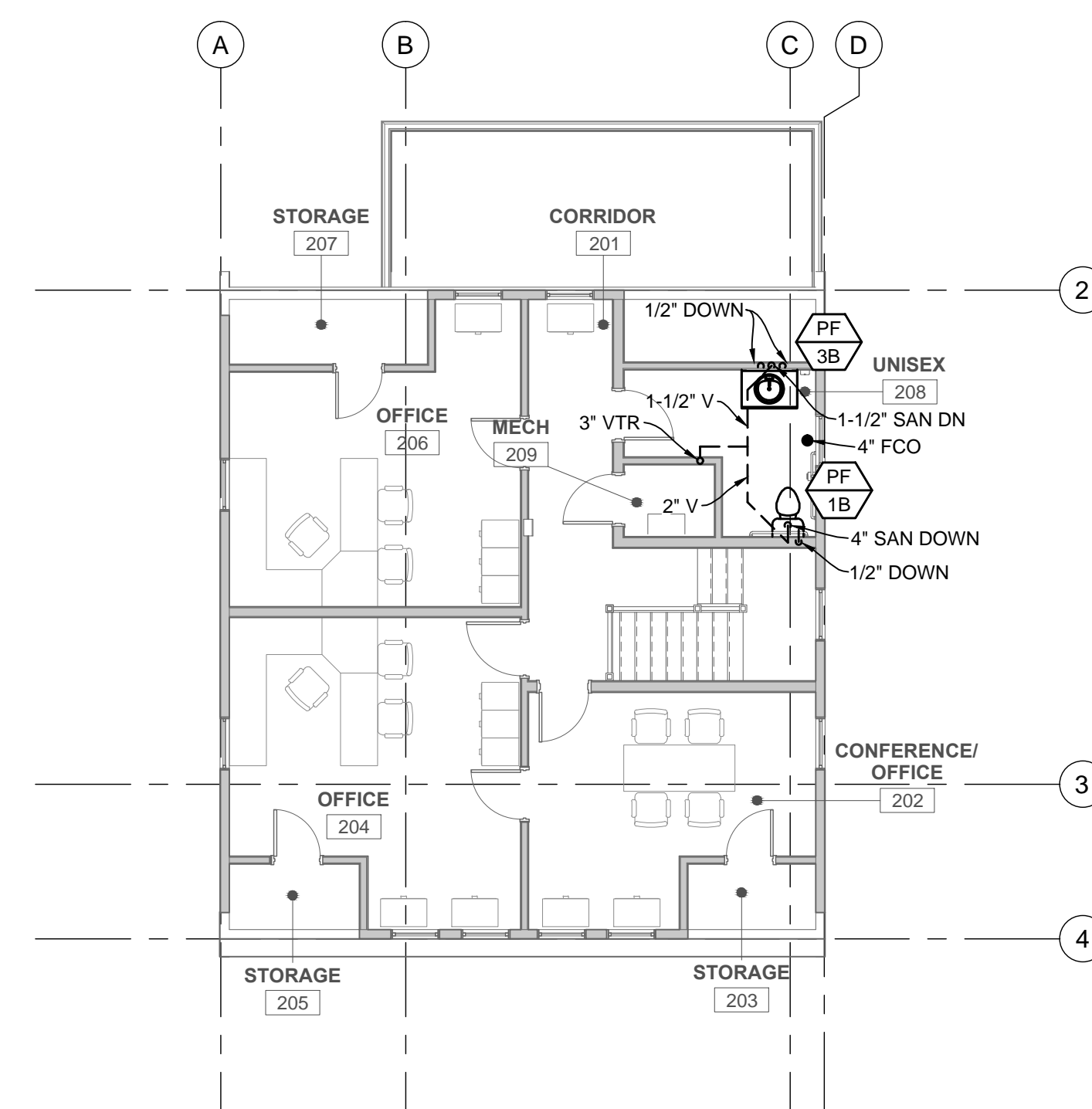
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Department of  
Veterans Affairs

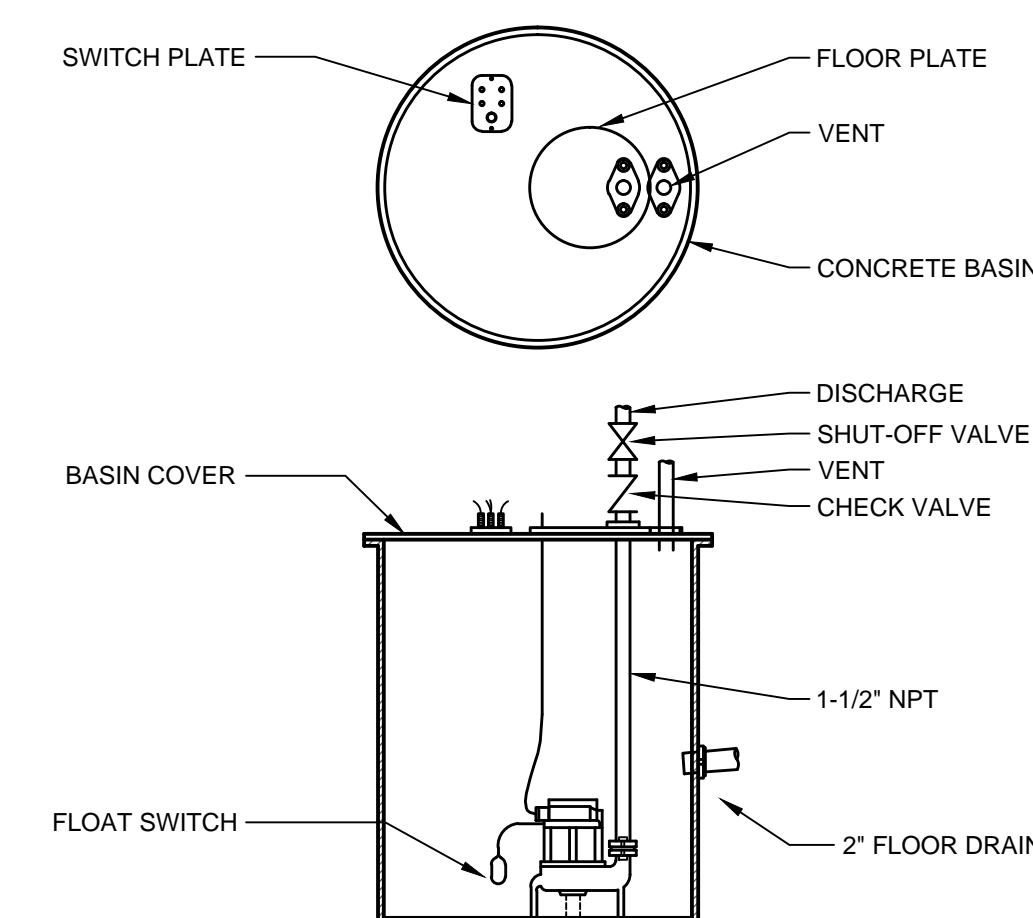
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2 FIRST FLOOR PLUMBING PLAN  
P-101J SCALE: 1/8" = 1'-0" LODGE BUILDING



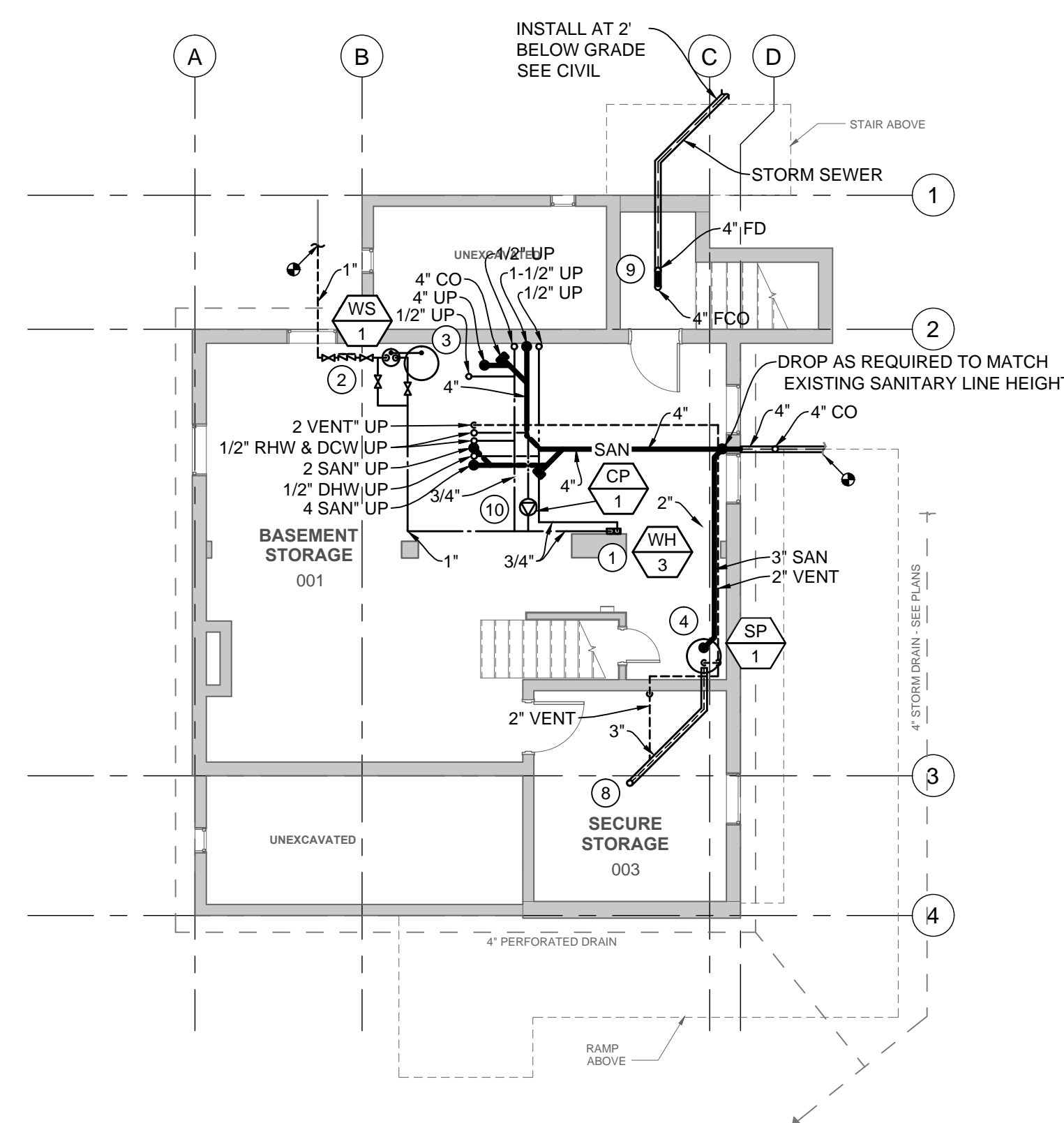
3 SECOND FLOOR PLUMBING PLAN  
P-1011 SCALE: 1/8" = 1'-0" LODGE BUILDING



4 SUMP PUMP DETAIL  
P-101L NOT TO SCALE -

- SPECIFIC NOTES:

- ① PLUMB NEW WATER HEATER TO NEW DHW LINE SERVING NEW BREAK ROOM SINK AND NEW BATHROOM LAVATORIES. SEE WATER HEATER DETAIL 5P-101L THIS SHEET.
- ② PROVIDE NEW ZONE REDUCED PRESSURE BACK FLOW PREVENTOR AND SHUT OFF VALVES. REFER TO WATER SERVICE DETAIL 6P-101L THIS SHEET.
- ③ PROVIDE WATER SOFTENER ACCORDING TO MANUFACTURE INSTRUCTIONS AND BYPASS VALVE.
- ④ PROVIDE SUMP BASIN AND PUMP. ROUTE 1/2" NPT PUMP DISCHARGE TO 4" SANITARY SEWER. SEE DETAIL 4P-101L THIS SHEET. PATCH FLOOR TO MATCH EXISTING.
- ⑤ ROUTE SINK FIXTURE WATER, SEWER, AND VENT SERVICE THROUGH FURRED WALL IN BATHROOM.
- ⑥ ROUTE NEW UTILITIES SOUTH IN FLOOR JOISTS AND EXTEND DOWN TO NEW SOFFIT.
- ⑦ PROVIDE NEW UTILITIES WITHIN ARCHITECTURAL SOFFIT.
- ⑧ PROVIDE NEW 3" FLOOR DRAIN TO NEW SUMP PUMP SYSTEM. FIELD VERIFY EXACT LOCATION. ROUTE FLOOR DRAIN PIPING TO AT LEAST 12" ABOVE BOTTOM OF SUMP PUMP BASIN. PATCH FLOOR TO MATCH EXISTING.
- ⑨ PROVIDE NEW 3" FLOOR DRAIN TO NEW STORM SEWER. SEE C-208 FOR LOCATION. FIELD VERIFY EXACT LOCATION. PROVIDE BACKWATER VALVE. PATCH FLOOR TO MATCH EXISTING.
- ⑩ PROVIDE NEW CIRCULATING PUMP, AQUASTAT, AND ACCESSORIES.



**1** BASEMENT FLOOR PLUMBING PLAN  
P-101L SCALE: 1/8" = 1'-0" LODGE BUILDING

PLUMBING FIXTURE SCHEDULE							
FIXTURE NO	DESCRIPTION	MANUFACTURER & CATALOG NO	PLUMBING CONNECTIONS				REMARKS
			WASTE	VENT	CW	HW	
PF-1B	TANK-TYPE WATER CLOSET ADA	AMERICAN STANDARD CADET FLOW-ISE, RIGHT HEIGHT, ELONGATED TOILET	4"	2"	1/2"	-	WHITE VITREOUS CHINA, #5324.019 SEAT, 1.1 GPF
PF-3B	COUNTERTOP LAVATORY	BOWL BY GENERAL CONTRACTOR	1-1/2"	1-1/2"	1/2"	1/2"	CHICAGO FAUCET 116.111.AB.1, GRID DRAIN, LAV. GUARD SUPPLY/DRAIN PROTECTOR, MIXING VALVE, HAWIRED SENSOR, 0.5 GPM, TYPE 2 FAUCET.
PF-4	DOUBLE BOWL SINK	ELKAY LUSTERTONE LRQ3322	1-1/2"	1-1/2"	1/2"	1/2"	ELKAY SINGLE-LEVER FAUCET WITH SPRAY MODEL LK4161, LK18B GRID DRAIN, TYPE 6

## TANKLESS ELECTRIC WATER HEATER SCHEDULE

EQUIP TAG	MAKE	MODEL NUMBER	MIN FLOW GPM	MAX FLOW GPM	VOLTAGE V/PH/Hz	POWER KW	FLA AMPERES	MCCP (QTY) AMPS	DIMMS L/W/D (INCHES)	WEIGHT LBS	NOTES
WH-3	RHEEM	RTE 9	0.4	3	240/1/60	9	38	(1) 40	10/8/8	8	1

NOTES: 1. MANUFACTURER INFORMATION IS SHOWN FOR BASIS OF DESIGN ONLY, OTHER MANUFACTURERS WILL BE ALLOWED

SUMP PUMP SCHEDULE										
EQUIP TAG	MFGR	MODEL NUMBER	TYPE	GPM	TOTAL HEAD	DISCH. CONN.	HP	VFD YES/NO	VOLTAGE (V/PH/HZ)	WEIGHT (LBS)
SP-1	WAYNE	CDU800	SUMP	10	20	1-1/2" NPT	1/2	YES/NO	120/1/60	15.0

NOTES: 1. MANUFACTURER INFORMATION IS SHOWN FOR BASIS OF DESIGN ONLY, OTHER MANUFACTURERS WILL BE ALLOWED

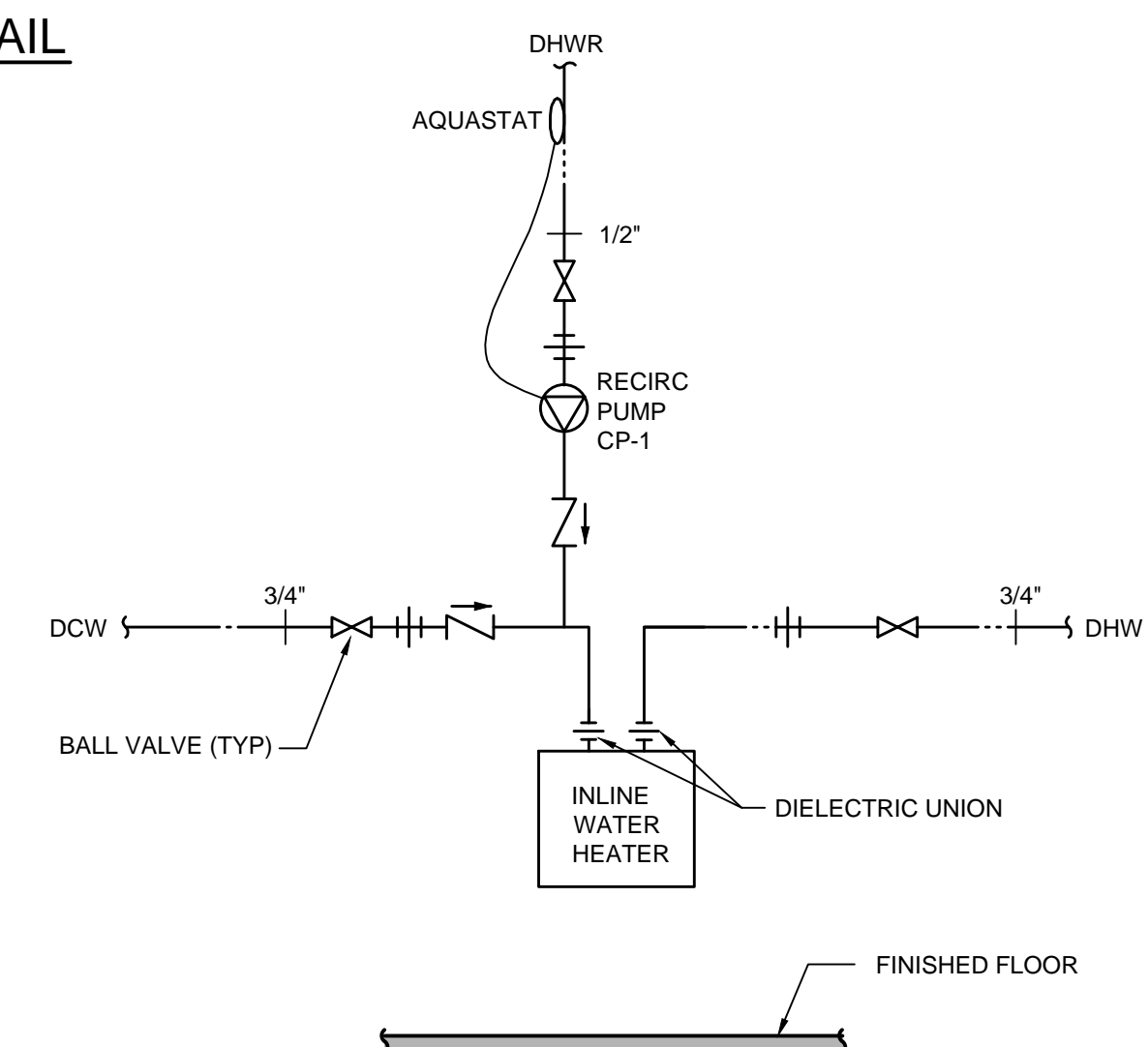
WATER SOFTNER SCHEDULE										
EQUIP TAG	MFR	MODEL NUMBER	TYPE	FLOW RATE @ 15PSI	PEAK FLOW RATE @ 25PSI	BACK WASH RATE (GPM)	CAPACITY SALT GRAIN/LBS	DIMENSIONS, HxW (IN)		WEIGHT WITH SALT (LBS)
								MINERAL TANK	BRINE TANK	
WS-1	HELLER BRAND	H-125-32	MODULAR	22	31	2 2	32 000/15	1044/12	40/18	330

WS-1	HELLENBRAND	H-125-32	MODULAR	22	31	2.2	32,000/15	1044/1
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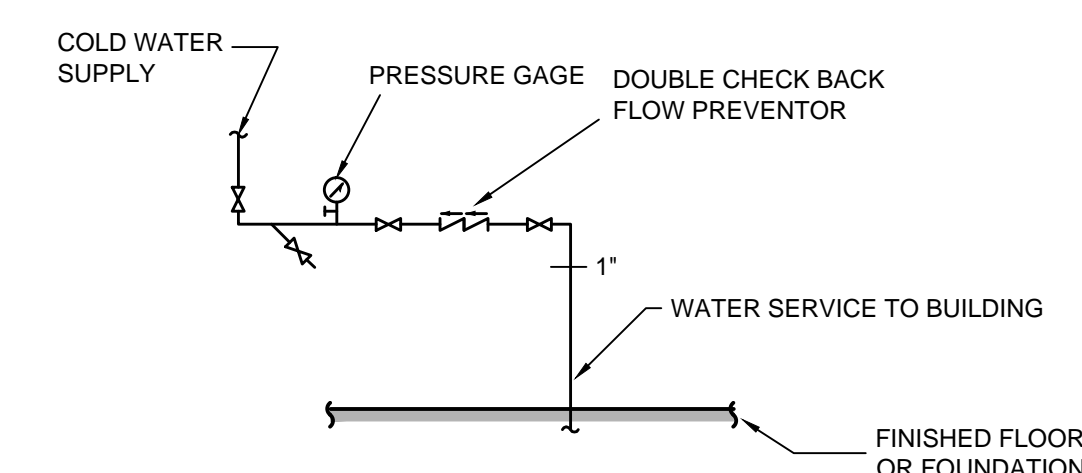
NOTES: 1. MANUFACTURER INFORMATION IS SHOWN FOR BASIS OF DESIGN ONLY. OTHER MANUFACTURERS WILL BE ALLOWED

RECIRCULATING PUMP SCHEDULE									
EQUIP TAG	MFGR	MODEL NUMBER	TYPE	GPM	TOTAL HEAD	DISCH. CONN.	WATTS	VOLTAGE (V/PH/Hz)	NOTES
CP-1	B&G	E3-4 /B	IN-J INF	1	3.5	1/2"	8	120/1/60	1.2

NOTES: 1. MANUFACTURER INFORMATION IS SHOWN FOR BASIS OF DESIGN ONLY, OTHER MANUFACTURERS WILL BE ALLOWED.  
2. PROVIDE PUMP WITH ADJUSTABLE AQUASTAT AND TIME CLOCK.



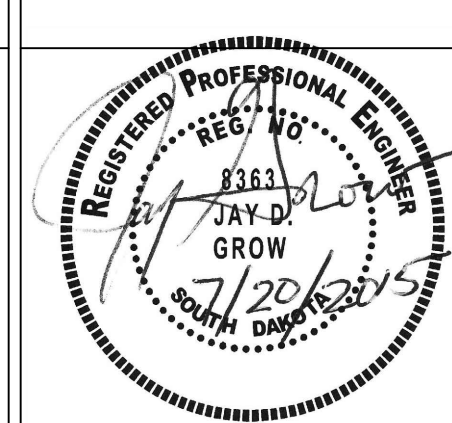
5 WATER HEATER DETAIL  
P-101L NOT TO SCALE



6 WATER SERVICE DETAIL  
P-101L NOT TO SCALE -

[illegible]

CONSULTANTS:



ARCHITECT/ENGINEERS:



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rapid city sd 57701  
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www.4front.biz

10.1696.013

Drawing Title	Lodge Building Plumbing Plans
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Approved: Project Director

Project Title	NASHVILLE NATIONAL CEMETERY ADMIN DEMOLITION AND FACILITY UPGRADES
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	Location

	Checked
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Draw

Project Number

Building Number

	Drawing Number

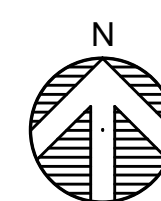
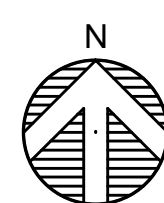
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Dwg 71 of 90

Dwg 71 of 90

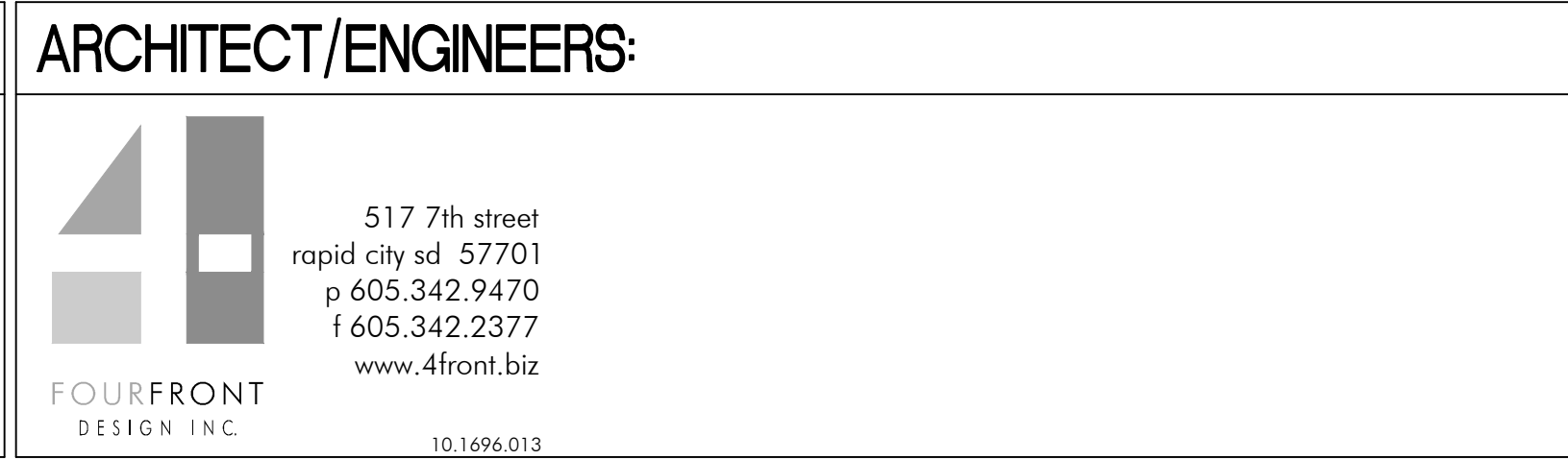
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SERVICE







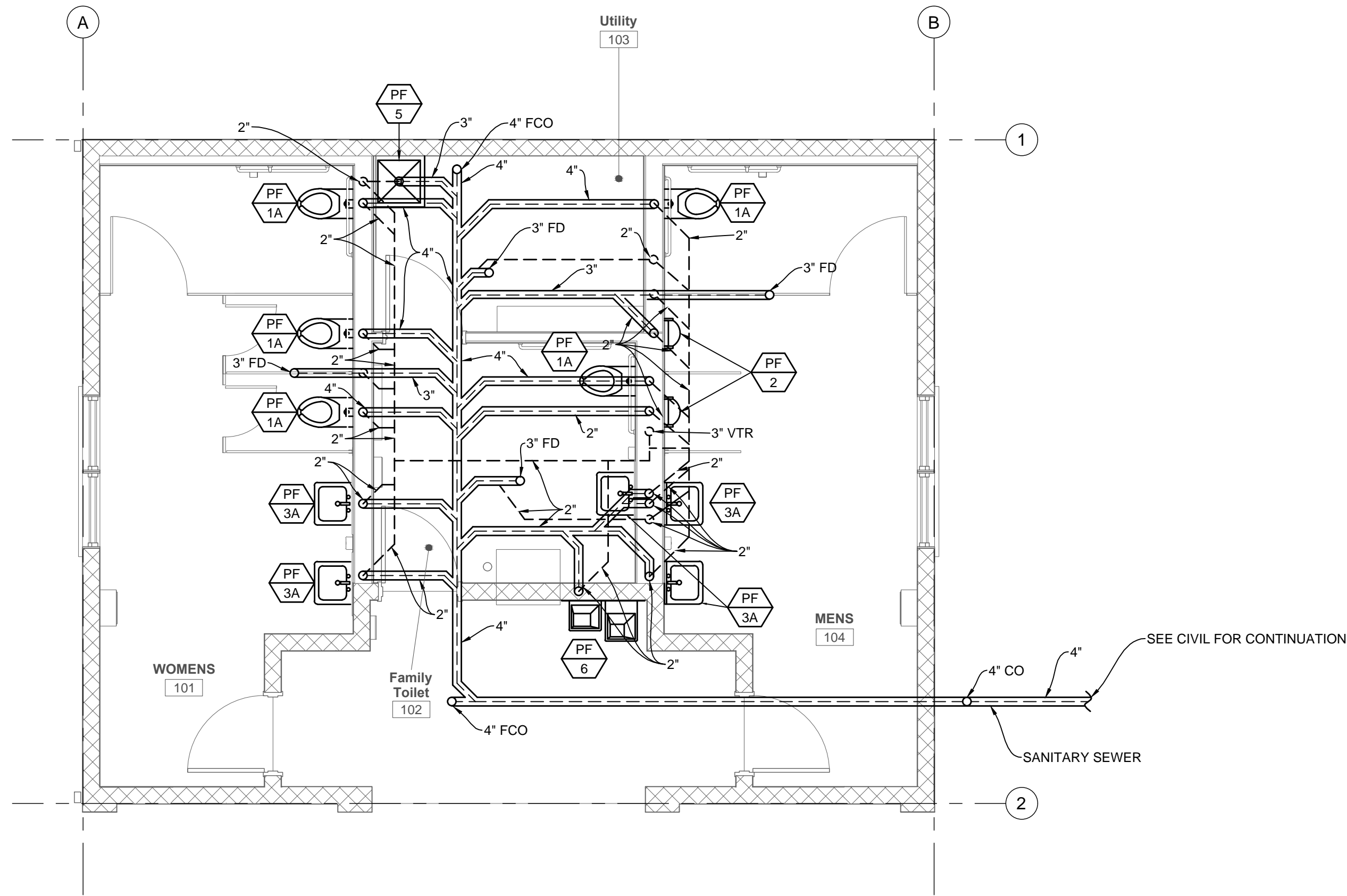
CONSULTANTS:



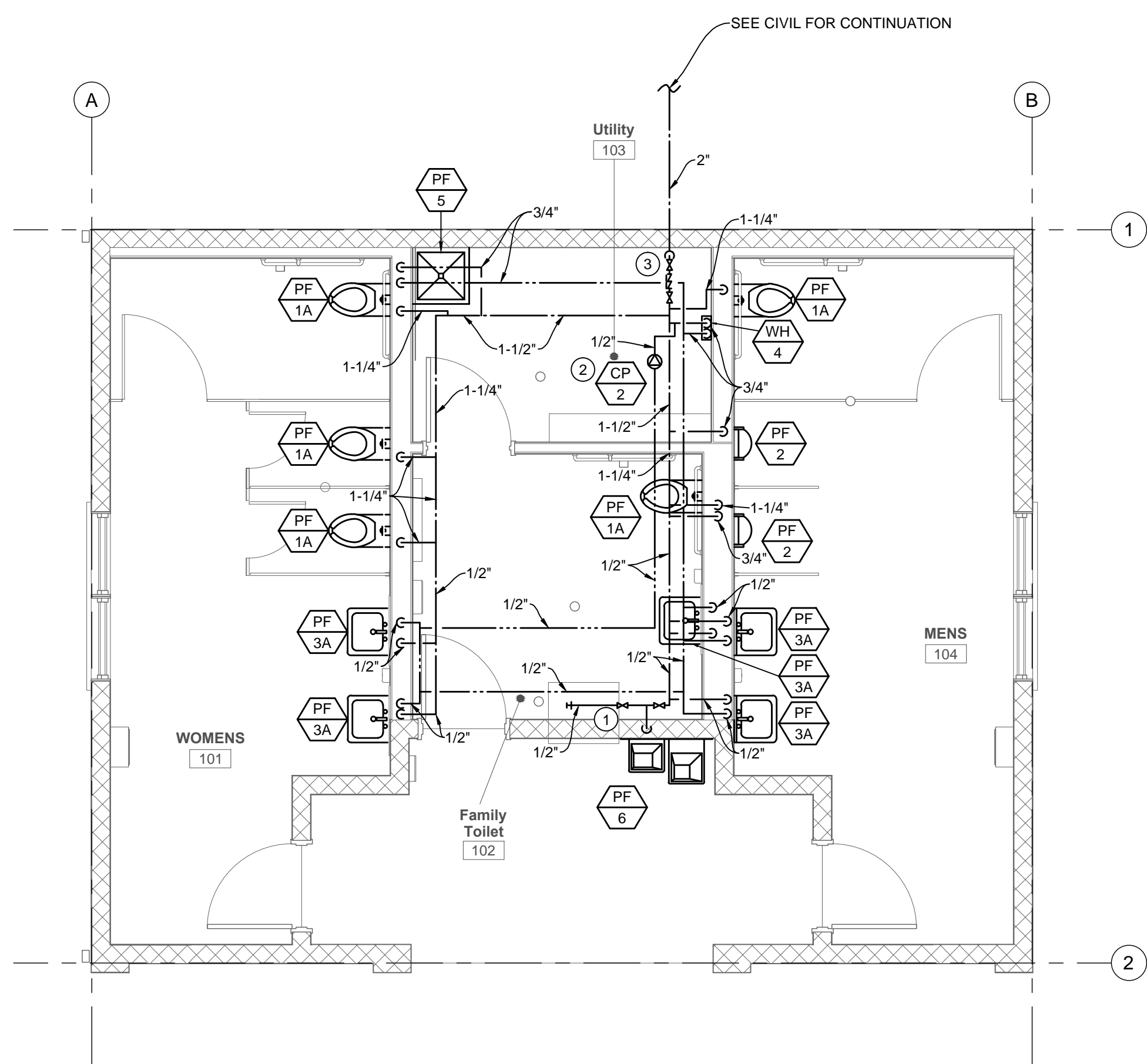
Department of  
Veterans Affairs



one eighth inch = one foot  
one quarter inch = one foot  
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ninety seven inches = one foot  
ninety eight inches = one foot  
ninety nine inches = one foot  
one hundred inches = one foot



1 TOILET WASTE & VENT PLAN  
SCALE: 1/4" = 1'-0"  
TOILET BUILDING



2 TOILET PLUMBING PLAN  
SCALE: 1/4" = 1'-0"  
TOILET BUILDING

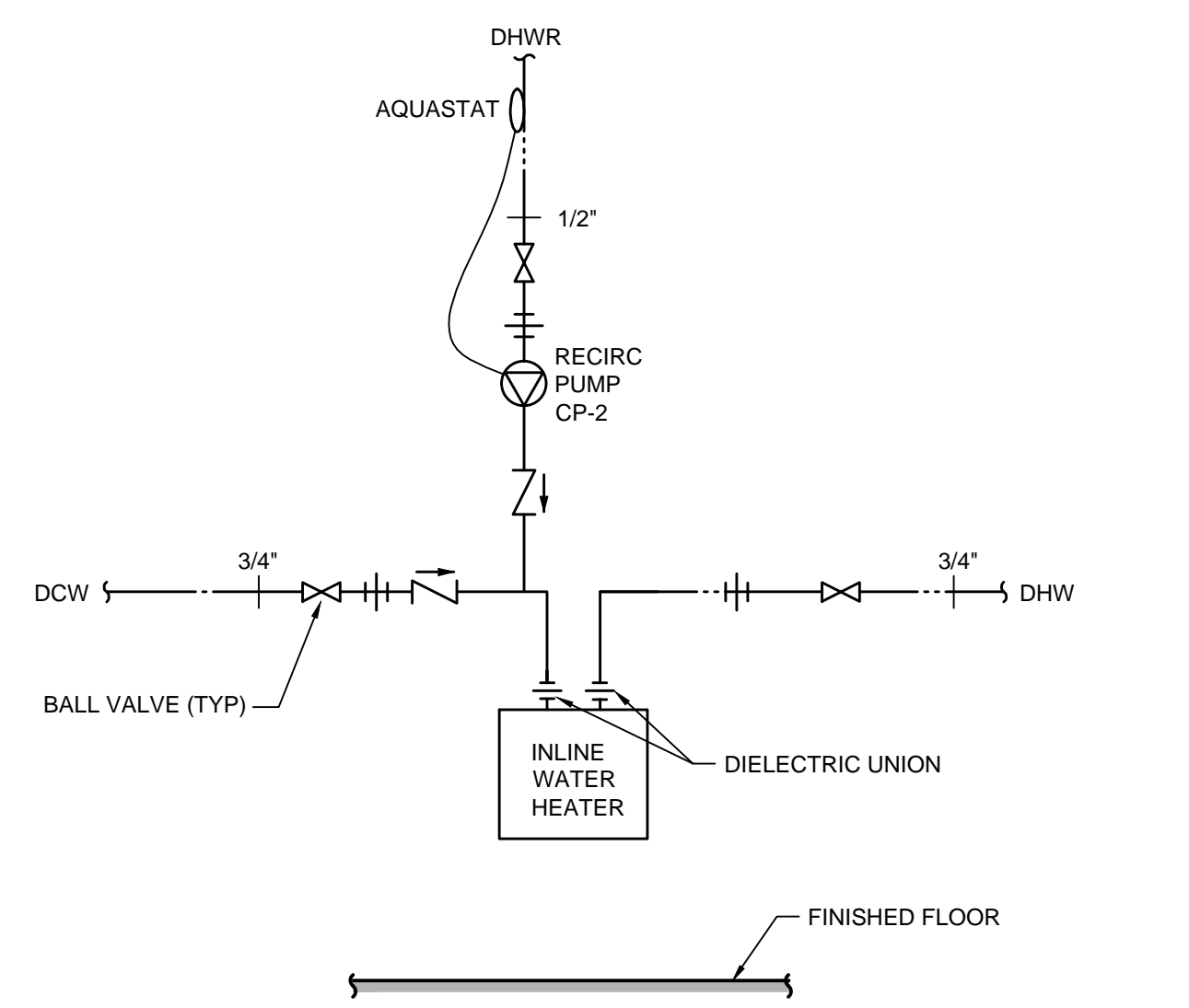
PLUMBING FIXTURE SCHEDULE							
FIXTURE NO	DESCRIPTION	MANUFACTURER & CATALOG NO	PLUMBING CONNECTIONS				REMARKS
			WASTE	VENT	CW	HW	
PF-1A	FV WATER CLOSET ADA WALL MOUNT	KOHLER K-4325 ELONGATED FLUSH VALVE TOILET	4"	2"	1-1/4"	-	WHITE VITREOUS CHINA, ZURN ZEM8000AV-HET-IS MODEL 1.28 GPF HARDWIRED SENSOR FV, CHURCH MODEL 9500C SEAT
PF-2	ADA URINAL	KOHLER BARDON	2"	1-1/2"	3/4"	-	WHITE VITREOUS CHINA, ZURN ZEM8003AV-IS FLUSH VALVE 0.5 GPF HARDWIRED SENSOR FLUSH VALVE
PF-3A	ADA LAVATORY WALL HUNG	AMERICAN STANDARD LUCERNE	1-1/2"	1-1/2"	1/2"	1/2"	ZURN Z824B0 SINGLE CONTROL FAUCET, GRID DRAIN, LAV GUARD2 SUPPLY/DRAIN PROTECTOR, MIXING VALVE, 0.5 GPM COMPENSATING SPRAY OUTLET, TYPE 2 FAUCET.
PF-5	SERVICE SINK	AMERICAN STANDARD 7745.811 MOP SERVICE BASIN	3"	1-1/2"	3/4"	3/4"	HOSE AND HOSE BRACKET, MOP HANGER, ZURN SINK FAUCET Z843M1 WITH VACUUM BREAKER, 3" SS DRAIN W/ FLAT STRAINER, TYPE 8 FAUCET.
PF-6	ADA WATER COOLER TWO STATION	ELKAY MODEL EZSTL8C	1-1/2"	1-1/2"	1/2"	-	SELF-CONTAINED, WALL HUNG

TANKLESS ELECTRIC WATER HEATER SCHEDULE											
EQUIP TAG	MAKE	MODEL	MIN FLOW RATE	MAX FLOW RATE	VOLTAGE	POWER	FLA	MOCP	DIMMS L/W/D	WEIGHT	NOTES
NUMBER			GPM	GPM	V/PH/Hz	KW	AMPERES	(QTY) AMPS	(INCHES)	LBS	
WH-4	RHEEM	RTE 9	0.4	3	240/1/60	9	38	(1) 40	10/8/8	8	1

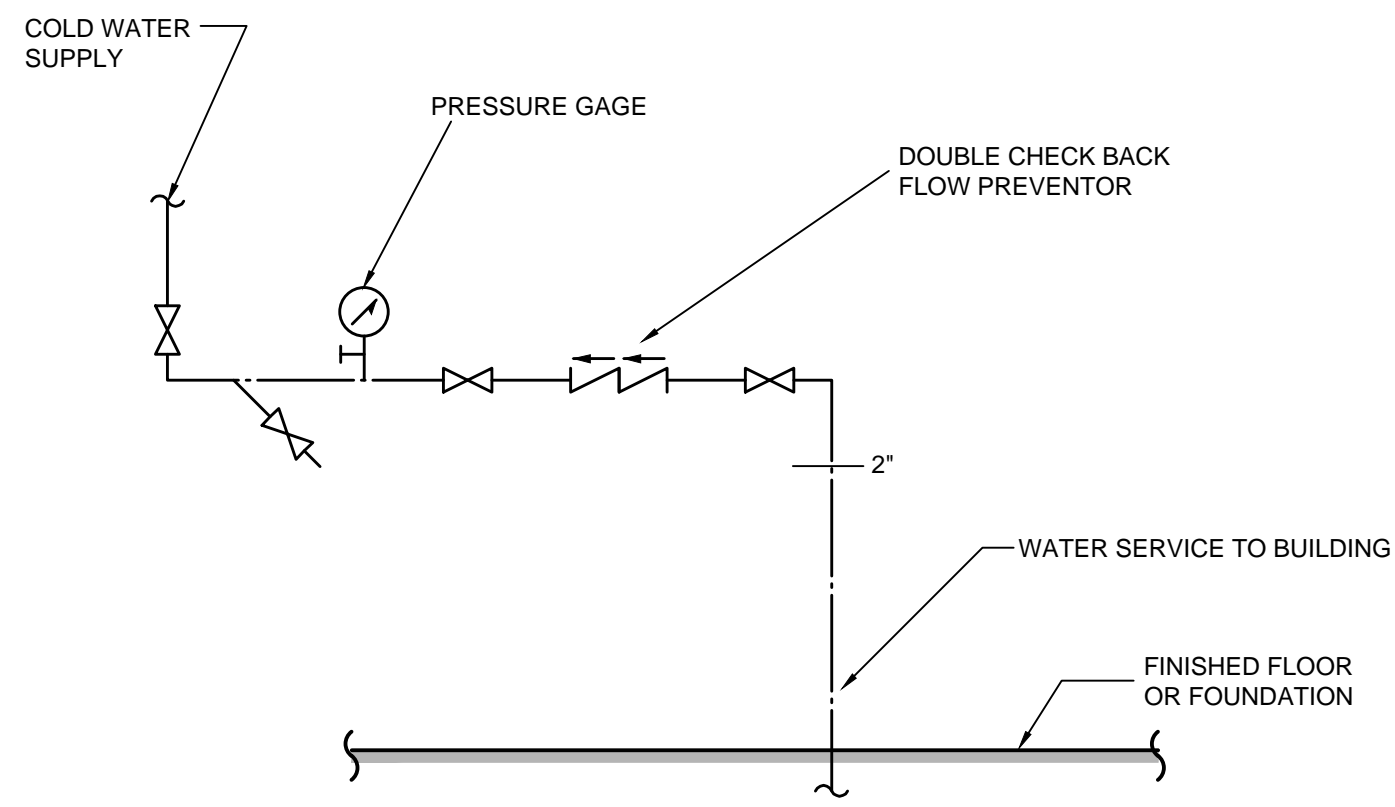
NOTES: 1. MANUFACTURER INFORMATION IS SHOWN FOR BASIS OF DESIGN ONLY, OTHER MANUFACTURERS WILL BE ALLOWED.

RECIRCULATING PUMP SCHEDULE									
EQUIP TAG	MFR	MODEL	TYPE	GPM	TOTAL HEAD	DISCH. CONN.	WATTS	VOLTAGE	NOTES
CP-2	B&G	E3-4 /B	IN-LINE	1	3.5	1/2"	8	120/1/60	1,2

NOTES: 1. MANUFACTURER INFORMATION IS SHOWN FOR BASIS OF DESIGN ONLY, OTHER MANUFACTURERS WILL BE ALLOWED.  
2. PROVIDE PUMP WITH ADJUSTABLE AQUASTAT AND TIME CLOCK.



3 WATER HEATER DETAIL  
NOT TO SCALE



4 WATER SERVICE DETAIL  
NOT TO SCALE

- SPECIFIC NOTES:**
1. PROVIDE CEILING ACCESS DOOR AND VALVES FOR DRAINING AND ISOLATING WATER SERVING EXTERIOR WATER COOLER. PROVIDE 3/8" AIR/ WATER QUICK DISCONNECT HOSE CONNECTION FOR WINTERIZING VIA AIR COMPRESSOR.
  2. PROVIDE NEW CIRCULATING PUMP, AQUASTAT, AND ACCESSORIES.
  3. PROVIDE NEW BACK FLOW PREVENTOR AND SHUT OFF VALVES. REFER TO WATER SERVICE DETAIL 4/P-101T THIS SHEET.

Revisions

Date

CONSULTANTS:

REGISTERED PROFESSIONAL ENGINEER  
NCA DESIGN AND CONSTRUCTION SERVICE  
7/20/2015

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FOURFRONT  
DESIGN INC.  
10.1696.013

Drawing Title  
Toilet Building  
Plumbing Plan

Approved Project Director

Project Title  
NASHVILLE NATIONAL CEMETERY  
ADMIN DEMOLITION AND FACILITY  
UPGRADES

Location  
MADISON, TENNESSEE

Date  
7/20/2015

Checked  
JG

Drawn  
MK

Project Number  
865CM3029

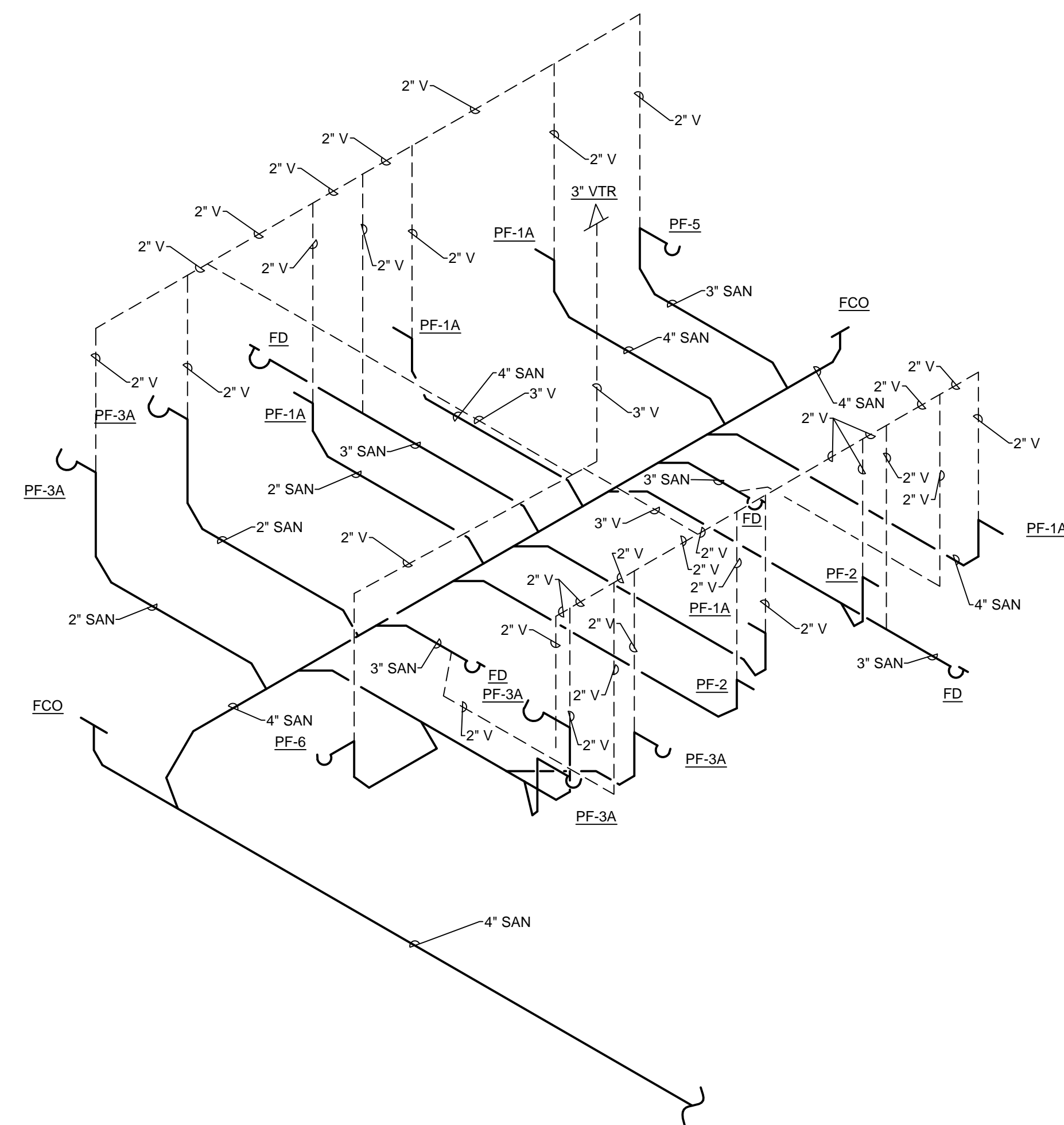
Building Number

Drawing Number  
P-101T  
Dwg. 74 of 90

NCA DESIGN  
AND CONSTRUCTION  
SERVICE  
Department of  
Veterans Affairs

VA FORM 08-6231





2 TOILET BUILDING DWV RISERS  
P-200 N.T.S.

**NCA DESIGN  
AND CONSTRUCTION  
SERVICE**

 Department of  
Veterans Affairs

three inches = one foot  
one and one half inches = one foot  
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one eighth inch = one foot

A

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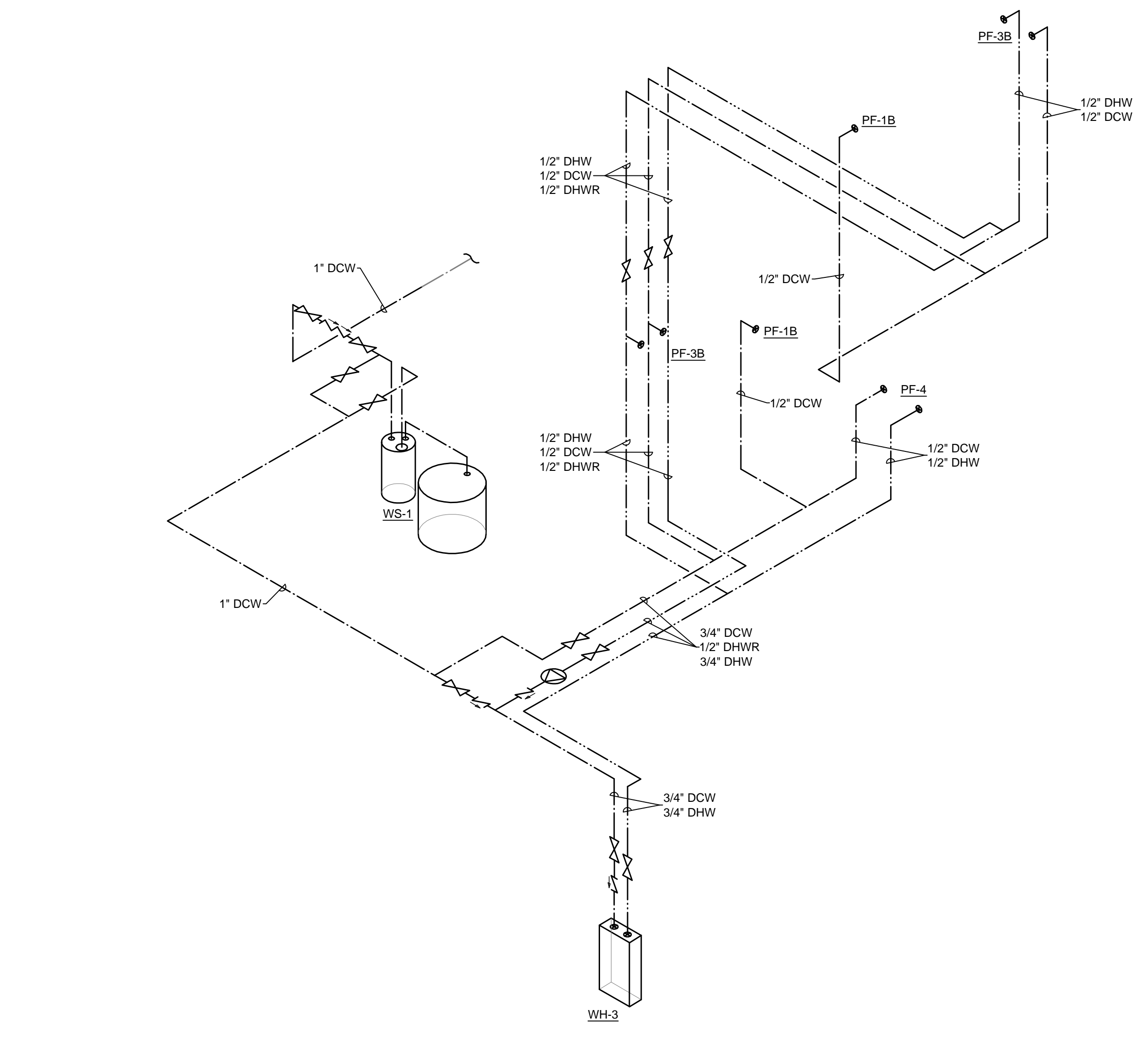
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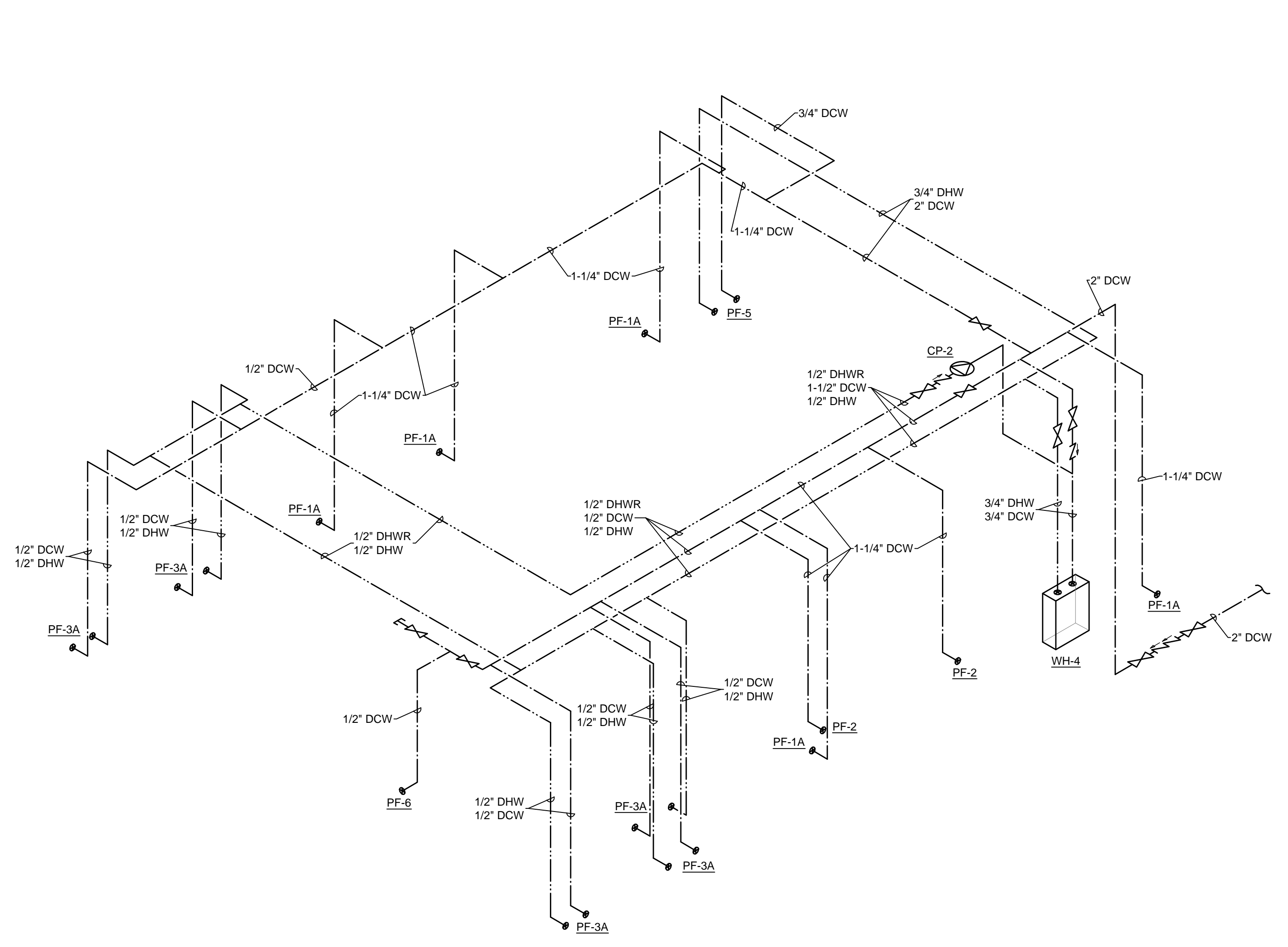
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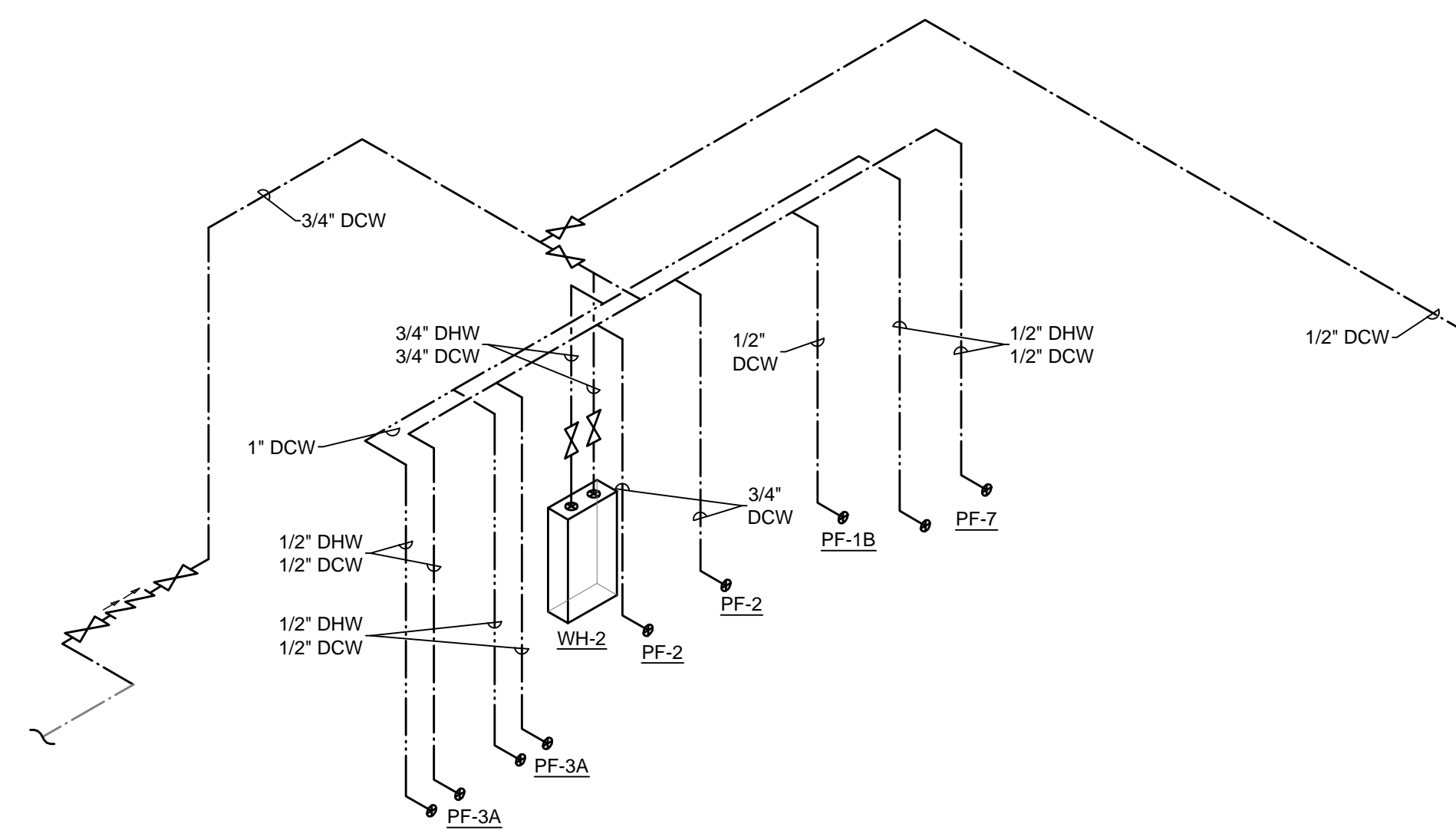
VA FORM 08-6231



1 LODGE BUILDING DOMESTIC  
WATER RISER ISOMETRIC  
N.T.S.



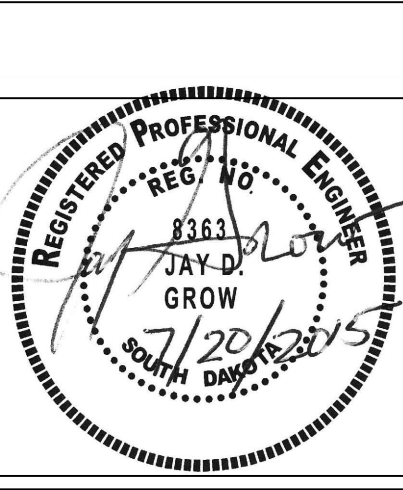
2 TOILET BUILDING DOMESTIC  
WATER RISER ISOMETRIC  
N.T.S.



3 MAINTENANCE BUILDING DOMESTIC  
WATER RISER ISOMETRIC  
N.T.S.

Revisions	Date

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www.4front.biz  
10.1696.013

Drawing Title  
**Domestic Water Risers**  
Approved Project Director

Project Title  
**NASHVILLE NATIONAL CEMETERY  
ADMIN DEMOLITION AND FACILITY  
UPGRADES**  
Location  
**MADISON, TENNESSEE**  
Date  
**7/20/2015**  
Checked  
**JG**  
Drawn  
**MP**

Project Number  
**865CM3029**  
Building Number  
**P-201**  
Drawing Number  
**Dwg. 76 of 90**

**NCA DESIGN  
AND CONSTRUCTION  
SERVICE**  
Department of  
Veterans Affairs

BID DOCUMENTS